IN SEARCH OF DRACULA • ARGENTINA MYSTERIES • HYMAN ON 'FALSE RESEARCH' FINDINGS

Skeptical Inquirer

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CYBERTERRORISM
Hoaxers, Hackers, and Policymakers

The Memory Wars Parts 2 and 3
Martin Gardner

Clarifying Critical Thinking

Intelligent Design Ruled Not Science

Adam Dreamhealer: The Big Bird and the Big Lie

Published by the Committee for the Scientific Investigation of Claims of the Paranormal

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Editorial

Court Decision in Dover Case a Victory for Good Science

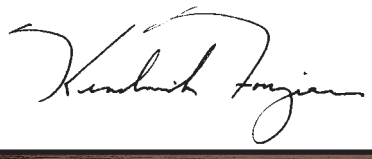
The court decision in the Dover (Pennsylvania) Intelligent Design case is cause for jubilation. For all of us who care deeply about science and science education, it should restore our faith in the system. For too long we have watched in frustration as countless school boards worked to undermine the teaching of evolution and to insert the religious-based idea of Intelligent Design as a "scientific alternative."

The ruling by District Court Judge John E. Jones III in the case against the Dover Area School District board, which had implemented a disclaimer against evolution in ninth grade science classes, should go a long way toward ending this phase of the fight for good science against creationism. Jones, a Republican, carefully considered the legal and historical context of the ID debate and all the expert testimony. He then wrote a clearly crafted, firmly stated, blistering decision ruling that Intelligent Design is not science but religion and that teaching it as science in public school classrooms is clearly unconstitutional. He said ID could not divorce itself from its roots in creationism, which in 1987 the Supreme Court declared unconstitutional. He excoriated some ID proponents testifying at the trial for their mendacity in pretending ID is not a religious concept and for, in several instances, outright lying under oath. He blasted those who wasted taxpayers' time and resources in bringing forth such an inane policy.

He even thoughtfully considered the scientific substance—such as it is—behind ID's arguments against evolution and found that also wanting. (ID'ers never present any evidence for ID itself.) In this respect, we should never again allow biochemist Michael Behe's ID arguments to be raised as evidence of "irreducible complexity." Judge Jones emphasized that Behe's pro-ID assertions (concerning the bacterial flagellum, the blood-clotting cascade, and the immune system) had never been subjected to peer review and therefore have no scientific standing. More damning, he showed that they have each been refuted by peer-reviewed science. So let's hear no more about Dr. Behe.

We all owe a large debt of gratitude not only to Judge Jones but also to the key pro-science expert witnesses in the six-week trial. The testimony of Brown University biology professor Kenneth Miller was obviously credible and persuasive to Jones and is frequently cited in his 139-page ruling. So too is the testimony of philosopher Barbara Forrest and UC Berkeley paleontologist Kevin Padian.

The time has now come to cease debating ID'ers on any scientific or substantive grounds. We should simply tell them and their allies to carefully read Judge Jones's ruling (see extended excerpts on pages 5–7 and 14–15) before saying another darned thing. As realists we know from experience that this is hardly the end of the creationist movement in America. But just as creationism itself was struck down in the legal arena, Intelligent Design has now likewise been dealt a mortal blow. The creationists' tactics will shift again. But for the time being, citizens and scientists alike can be grateful for a federal court decision that clearly and decisively ruled ID a sham and out of bounds as any kind of underhanded alternative to evolution.



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In Landmark Dover Decision, Judge Rules ID Is Not Science, Teaching It Is Unconstitutional

KENDRICK FRAZIER

It was clear, strong, eloquent, and decisive. It ruled broadly on the merits of the case. And it dealt a stinging rebuke to "Intelligent Design" advocates and brought a welcome legal defense of good science in the classroom.

Judge John E. Jones III's much-awaited decision in the case of parents Tammy Kitzmiller, et al. against the Dover [Pennsylvania] Area School District (outside of Harrisburg) was just what defenders of science had hoped for. Perhaps even better.

Jones, U.S. District Court Judge for the Middle District of Pennsylvania and a Republican, ruled on December 20 that Intelligent Design is not science but "a religious view" and that teaching it in the public school science classroom as such violates the United States Constitution (and the Pennsylvania Constitution).

He also excoriated the board for duplicity in pretending ID isn't just warmed-over creationism (whose teaching had already been ruled unconstitutional) and for "breathtaking inanity" in adopting an unconstitutional policy that wasted taxpayers' time and money. He referred to "mendacity" on the part of the ID proponents and called their assertion that their motivations were secular—to advance "science education" and "critical thinking"—rather than religious "ludicrous and a sham."

The board had accepted a policy in November 2004 that required ninth-grade biology teachers at Dover High School to read a statement referring to evolution as a theory with gaps ("not a fact") and calling attention to ID as "an explanation for the origin of life that differs from Darwin's view."

In what seemed to be an intentional effort to deter other school boards from trying similar pro-ID tactics, Jones awarded damages, costs, and attorney fees to the plaintiffs who brought the suit against the board (whose pro-ID members had since been thrown out).

The full text of his 139-page decision, which came after a six-week trial at which a number of scientists and science scholars testified, is on the Web and merits everyone's reading. *Following is the text of the "Conclusion" section.*

H. Conclusion

The proper application of both the endorsement and Lemon tests to the facts of this case makes it abundantly clear that the Board's ID Policy violates

EPA/JUSTIN LANE [Photo via NewsCom]

the Establishment Clause. In making this determination, we have addressed the seminal question of whether ID is science. We have concluded that it is not, and moreover that ID cannot uncouple itself from its creationist, and thus religious, antecedents.

Both Defendants and many of the leading proponents of ID make a bedrock assumption which is utterly false. Their presupposition is that evolutionary theory is antithetical to a belief in the existence of a supreme being and to religion in general. Repeatedly in this trial, Plaintiffs' scientific experts testified that the theory of evolution represents good science, is overwhelmingly accepted by the scientific community, and that it in no way conflicts with, nor does it deny, the existence of a divine creator.

To be sure, Darwin's theory of evolution is imperfect. However, the fact that a scientific theory cannot yet render an explanation on every point should not be used as a pretext to thrust an untestable alternative hypothesis grounded in religion into the science classroom or to misrepresent well-established scientific propositions.

The citizens of the Dover area were poorly served by the members of the Board who voted for the ID Policy. It is ironic that several of these individuals, who so staunchly and proudly touted their religious convictions in public, would time and again lie to cover their tracks and disguise the real purpose behind the ID Policy.

With that said, we do not question that many of the leading advocates of ID have bona fide and deeply held beliefs which drive their scholarly endeavors. Nor do we controvert that ID should continue to be studied, debated, and discussed. As stated, our conclusion today is that it is unconstitutional to teach ID as an alternative to evolution in a public school science classroom.

Those who disagree with our holding will likely mark it as the product of an activist judge. If so, they will have erred as this is manifestly not an activist Court. Rather, this case came to us as the result of the activism of an ill-informed faction on a school board, aided by a national public interest law firm eager to find a constitutional test case on ID, who in combination drove the Board to adopt an imprudent and ultimately unconstitutional policy. The breathtaking inanity of the Board's decision is evident when considered against the factual backdrop which has now been fully revealed through this trial. The students, parents, and teachers of the Dover Area School District deserved better than to be dragged into this legal maelstrom, with its resulting utter waste of monetary and personal resources.

To preserve the separation of church and state mandated by the Establishment Clause of the First Amendment to the United States Constitution, and Art. I, § 3 of the Pennsylvania Constitution, we will enter an order permanently enjoining Defendants from maintaining the ID Policy in any school within the Dover Area School District, from requiring teachers to denigrate or disparage the scientific theory of evolution, and from requiring teachers to refer to a religious, alternative theory known as ID. We will also issue a declaratory judgment that Plaintiffs' rights under the Constitutions of the United States and the Commonwealth of Pennsylvania have been violated by Defendants' actions. Defendants' actions in violation of Plaintiffs' civil rights as guaranteed to them by the Constitution of the United States and 42 U.S.C. § 1983 subject Defendants to liability with respect to injunctive and declaratory relief, but also for nominal damages and the reasonable value of Plaintiffs' attorneys' services and costs incurred in vindicating Plaintiffs' constitutional rights.

NOW, THEREFORE, IT IS ORDERED THAT:

1. A declaratory judgment is hereby issued in favor of Plaintiffs pursuant to 28 U.S.C. §§ 2201, 2202, and 42 U.S.C. § 1983 such that Defendants' ID Policy violates the Establishment Clause of the First Amendment of the Constitution of the United States and Art. I, § 3 of the Constitution of the Commonwealth of Pennsylvania.
2. Pursuant to Fed.R.Civ.P. 65, Defendants are permanently enjoined from maintaining the ID Policy in any school within the Dover Area School District.
3. Because Plaintiffs seek nominal damages, Plaintiffs shall file with the Court and serve on Defendants, their claim for damages and a verified statement of any fees and/or costs to which they claim entitlement. Defendants shall have the right to object to any such fees and costs to the extent provided in the applicable statutes and court rules.

s/John E. Jones III
John E. Jones III
United States District Judge

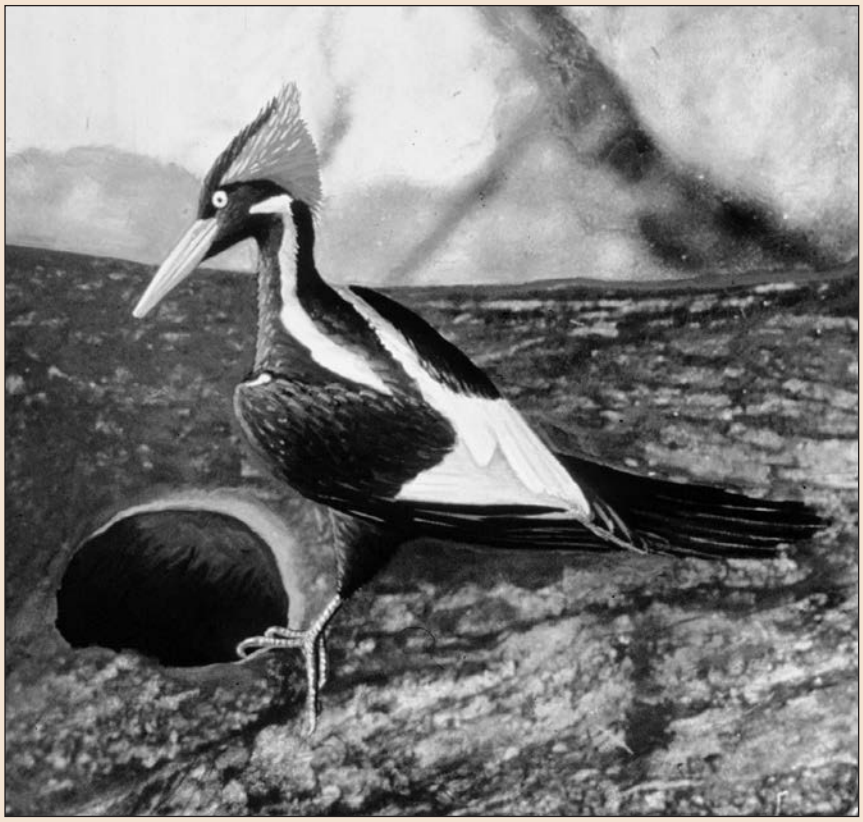
For more extended excerpts from Judge Jones's ruling, see pages 14–15.

Quoteworthy

"[Philip J.] Klass was the voice of cool reason, seeking to demonstrate that a temporary inability to fill in the whole story should not open the door to wild speculation. His real argument, like all debunkers', was not with the people who believed they had witnessed or experienced some paranormal event but with those who made an industry of igniting their imaginations."

From "The Debunker"
by Michael Sokolove,
The New York Times Magazine,
December 25, 2005

Rare Woodpecker, Presumed Extinct, Found in Arkansas



A digital image of an ivory-billed woodpecker at nest. The ivory-billed woodpecker, once thought to have become extinct, has reportedly been sighted in eastern Arkansas. (gsb) 2005 (Diversity)

A chance sighting in Arkansas's Cache River National Wildlife Refuge of a presumed extinct woodpecker led to a 2005 scientific expedition that apparently confirmed that the birds still live.

The ivory-billed woodpecker (*Campephilus principalis*), last known to exist in 1944, was sighted in eastern Arkansas in 2004. A blurry video clip showed the bird's distinctive size and markings. "The bird captured on video is clearly an ivory-billed woodpecker. Amazingly, America may have another chance to protect the future of this spectacular bird and the awesome forests in which it lives," said John Fitzpatrick, director of the Cornell Laboratory of Ornithology.

The sighting prompted a massive (and secret) follow-up search in a sixteen-square-mile area of Arkansas forest. When stronger evidence of the bird was found, the discovery spawned international headlines, a cover article in the journal *Science* (June 3, 2005), and a book titled *The Grail Bird: Hot on the Trail of the Ivory-billed Woodpecker.*

The rediscovery of the woodpecker was touted by cryptozoologists as proof that animals thought long extinct may still exist. This logic is extended to suggest that mysterious creatures such as Bigfoot may also remain to be found. Yet there is a huge difference between a population of thousands of giant, unknown creatures for which no hard evidence exists, and a surviving member of a relatively small species long confirmed to exist.

The investigation is almost as interesting for what it did *not* find: Bigfoot. The search for the woodpecker took months of intensive research in the woods of rural Arkansas. Bigfoot believers try to explain away the lack of evidence by suggesting that Bigfoot are out in remote areas, but few people are actively looking or listening. Here is a perfect counter-example: knowledgeable researchers with sophisticated equipment in the field for extended periods of time. Arkansas is known as Bigfoot territory, and even touts one famous local creature, the Fouke Monster. Yet no reports of unidentified, Bigfoot creatures or vocalizations emerged from the team's voluminous recordings and observations.

While researchers were not specifically looking for Bigfoot, new discoveries often occur when searchers look for one quarry but find others. Surely so many trained eyes and ears, with so much equipment, could not have failed to notice hairy manlike giants living in and roaming through the woods.

Further study may yet yield results; Cornell scientists have renewed the search, and are scouring thousands of acres using Global Positioning System equipment, binoculars, digital video cameras, and cell phones. Tree-mounted digital cameras include all the gizmos a zoologist could want, including time lapse, motion detection, infrared, and high-definition. High-tech, multidirectional audio units able to record sounds up to 200 meters away should be suitable for capturing both distinctive woodpecker taps and the oft-reported (but never verified) Bigfoot vocalizations.

Surely such a sustained, well-equipped scientific effort in an area famous for Bigfoot sightings will likely yield some evidence for whatever elusive creatures may lurk in the Arkansas woods. Of course, if no evidence of Bigfoot is found, this will not deter believers (Loch Ness has been repeatedly and thoroughly searched for most of a century with little results). But it will remove the excuse that no one's searching Bigfoot territory.

—Benjamin Radford

Benjamin Radford is managing editor of the SKEPTICAL INQUIRER *and has written extensively on mysterious creatures, including in his upcoming book* Lake Monster Mysteries, *coauthored by Joe Nickell.*

Evolution *Science*'s Top Story of the Year

Each December, the editors of *Science* magazine, one of the world's leading scientific journals, review the most important leading-edge research published in all fields to select the most influential discoveries of the past year.

The editors selected as the 2005 Breakthrough of the Year, "Evolution in Action," to highlight three outstanding papers in the field of evolutionary biology.

"2005 stands out as a banner year for uncovering the intricacies of how evolution actually proceeds," said *Science* editor-in-chief Donald Kennedy. "Concrete genome data allowed researchers to start pinning down the molecular modifications that drive evolutionary change in organisms from viruses to primates, and painstaking field observations shed new light on how populations diverge to form new species."

Three areas of research were noted in particular:

• The sequencing of the chimpanzee genome, allowing researchers to compare it with already sequenced human DNA. Only about 4 percent of the coding differs between the two close relatives.

• The human haplotype map, being developed by an international team, catalogues the patterns of genetic variability among people. Researchers are looking for patterns that match with ailments such as diabetes, arthritis, and cardiovascular disease.

• Research into the formation of new species as they evolve to differ from others.

—K.F.

Art Bell's Show Broadcasts Sylvia Browne Failure about Mine Tragedy

Self-proclaimed psychic Sylvia Browne, the best-selling author and a regular on *Larry King Live* and *Montel Williams* shows, blundered in an important prediction live on national radio on January 4, 2006. According to an article on Fox news by Roger Friedman, Browne was on the air with George Noory of the paranormal-promoting radio show "Coast to Coast AM" when updated news of a West Virginia mining disaster aired. Friedman notes, "It's clear the psychic had no idea what had happened to the miners, though she claimed to have been right on top of it."

Noory mentioned the disaster on air to Browne, and relayed the news that all but one of the miners had been safely rescued. A transcript of the radio show reveals that Browne stated, "I knew they were going to be found. I hate people that say something after the fact." Unfortunately for both the miners' families and Browne, that news report was wrong: in fact, all but one of the miners were dead. Later, as Noory passed along the new information, Browne's psychic visions seemed to change with the update, and she backpedaled: "I don't think there's anybody alive, maybe one. How crazy for them to report that they were alive when they weren't!"

After a commercial break, Browne, obviously still concerned that her blunder revealed her psychic abilities to be faulty, returned to the subject of the miners. "I didn't believe that they were alive. . . . I've been on the show with you, but I don't think there's any that are going to make it." Alas, even in her desperate attempt to salvage what remained of her credibility, Browne blew it again. One miner did indeed make it out alive. Psychics are of course on safer ground making vague predictions about love and personal lives, instead of verifiable events.

—Benjamin Radford

Skepchicks Raise Profile of Female Skeptics

Anyone familiar with the skeptical community knows that the number of women involved in conferences, activism, and other events has historically been low. Why is this? CSICOP has explored the question in SKEPTICAL INQUIRER through the years, with insights from Carl Sagan, Carol Tavris, and many others. Are women simply more gullible than men and unable to resist the siren song of the New Age? Does the old, white, male, face of skepticism deter women from playing an active role?

Whatever the reasons, the tide is finally turning with the recent launch of Skepchicks International, whose slogan is "smart is sexy." Skepchicks "is an organization dedicated to promoting skepticism and critical thinking among women around the world," according to founder Rebecca Watson. Skepchicks is aimed primarily at women who may or may not consider themselves "skeptics" or have any knowledge of the skeptical community. However, men and women currently active in skepticism should find the content fun and informative.

To kick off the organization, skepchicks from around the world have come together in an online forum at www.skepchick.org. Along with general topics of interest to the critically thinking community, subjects of specific interest to women are highlighted. Efforts to help raise awareness about skepticism among women are discussed, and ideas for future projects are set in motion. As a fundraising effort, Skepchicks has produced a 2006 calendar (above) exhibiting tasteful black and white photographs of skeptical women with both brains and beauty.

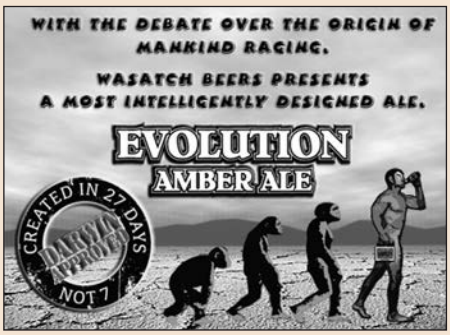
In January, Skepchicks launched a monthly magazine with news, articles, editorials, and reviews.

—Amanda Chesworth

Amanda Chesworth is a Skepchick and CSICOP's Educational Director.

It's a Natural Selection: Evolution Amber Ale

Beer is an ancient invention, so, using the reasoning of proponents of long-forgotten Eastern mysticism and alternative medicine practices, it must therefore be inherently good for us. How can we doubt this logic? Surely we skeptics can agree that a fine ale or lager can provide an evidence-based cure for thirst . . . a common and recurring ailment among our species.



Greg Shirf, founder of Wasatch Brewery in Utah, has been an activist against nonsense for years. Recently, to protest his disdain for Intelligent Design he found a new name for his award-winning amber ale: Evolution Amber Ale. The label features a Darwin Approved seal and the tagline, "created in 27 days, not 7."

"The unintended irony is that this beer actually is evolutionary," Schirf noted. "The 2002 'Unofficial' Amber Ale has been a top seller for five years. We always knew that we would need to come up with a new name in order to remain meaningful for our customers. It was just a matter of time before Utah legislators provided us with the right inspiration."

On the Wasatch Brewery Web site (www.wasatchbeers.com) visitors can learn about the products available, be introduced to the political climate in Utah, and also read a well-written argument against Intelligent Design.

Another Wasatch brew, which gained national and international spotlight, was Polygamy Porter, with the tagline "Why have just one?" Cheers!

—Amanda Chesworth

REACH OUT TO A NEW FUTURE!

CENTER FOR INQUIRY
Transnational

New Future Fund

This phase of the campaign spotlights a family of high-impact projects.

As construction of the Center for Inquiry–*Transnational* expansion is completed, we turn to new challenge goals in our multi-year, $26.26 million **New Future Fund** campaign.

The **New Future Fund** is an ambitious campaign to support the Center for Inquiry, the Committee for the Scientific Investigation of Claims of the Paranormal, and the Council for Secular Humanism through endowment funding and support for expanded programming. The **New Future Fund** was launched after thorough study, and its goals reflect needs judged indispensable if the Center for Inquiry is to continue serving society as the leading champion of reason, scientific naturalism, and humanist values.

Opposing Creationism/ Intelligent Design

Intelligent Design (ID) theory is creationism's new face, sparking some 70 new controversies in an astonishing *26 states*. CSICOP is gearing up to **fight back** with grassroots outreach to mobilize skeptics at the local level when ID proposals loom; a stimulating new Web site, www.csicop.org/creationwatch; and media outreach, from new literature to books to top-shelf online columnists.

As ID advocates plan to shoulder Darwin and the scientific viewpoint out of public schools, the **New Future Fund** helps CSICOP say **no!**

The Center for Inquiry has obtained United Nations recognition as a nongovernmental organization (NGO), opening new avenues for activism and human enrichment.

The Center for Inquiry presses for humanism, science, and reason worldwide. Centers for Inquiry have been established in Argentina, China, Egypt, France, Germany, India, Nepal, Nigeria, Peru, Russia, and elsewhere, pursuing regionally tailored agendas.

The Center and its affiliates have facilitated international meetings of humanists and skeptics for more than two decades. Your gift to the **New Future Fund** will help this transnational expansion continue.

Outreach

The Center for Inquiry movement began with publishing, still essential to our mission. *Skeptical Inquirer* and *Free Inquiry* headline a family of magazines in three languages, newsletters, and Web sites. Professional public education and media relations further amplify our message. Campus outreach presents our message of science and reason to the leaders of tomorrow.

Your gift to the **New Future Fund** can help to support core publishing outreach (this issue of *Skeptical Inquirer* is four pages longer than early-2005 issues, thanks to support from the **New Future Fund**), fuel our exploitation of new communications technologies, and fund more aggressive on-campus programs. The **New Future Fund** is key to the future promotion of skepticism, science, reason, and humanism by the Center for Inquiry and its affiliates.

Your gift to the **New Future Fund** can support these and other urgent priorities. We gratefully accept gifts of cash, publicly traded securities, paid-up insurance policies, and other assets. We are pleased to offer attractive incentive and naming opportunities to honor major contributors. All gifts are fully tax-deductible as provided by law. Campaign personnel are available to meet with donors to provide updates on our plans and to discuss other commemorative opportunities tailored to particular needs and interests.

Contact Sherry Rook, Director of Development
Center for Inquiry–*Transnational*
PO Box 741, Amherst NY 14226-0741
(716) 636-4869, ext. 427
E-mail: development@centerforinquiry.net
Web site: http://www.centerforinquiry.net

Please join us and declare your support today. Write, call, e-mail, or return the bound-in postcard (at right) today!

The Center for Inquiry, the Committee for the Scientific Investigation of Claims of the Paranormal (CSICOP), and the Council for Secular Humanism are 501(c)(3) tax-exempt charitable organizations.

Ludmil A. Chotkowski, M.D., 1916–2005, Challenged Chiropractic

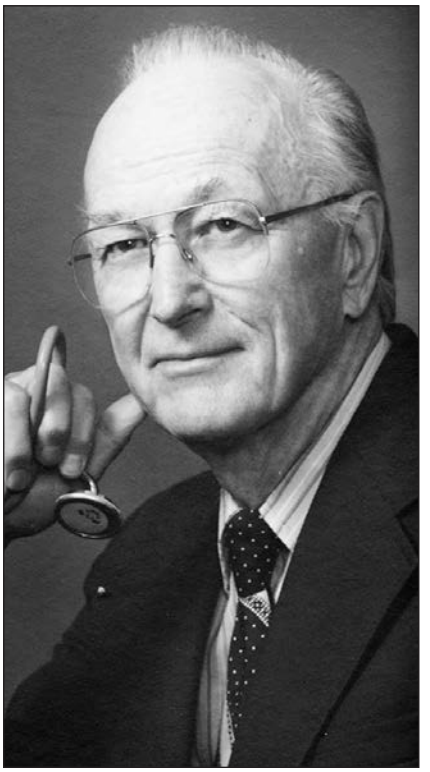
Ludmil A. Chotkowski, M.D., died of a brain tumor at his home in Berlin, Connecticut, October 6, 2005, at the age of 89. He was a graduate of the Yale Medical School and a board-certified specialist in internal medicine. Chotkowski's pull-no-punches style challenged the veracity of alternative-medicine claims and gained him respect among the skeptic community, but concomitant hatred from many members of the chiropractic profession.

He was best known for his book *Chiropractic: Greatest Fraud of the Century?* (edited by Stephen Barrett). The book's in-your-face title set the tone for the challenge found between its covers. Chotkowski's writings stripped away all pretenses that chiropractic theory and practice had any scientific basis. He labeled the chiropractic use of scientific terminology mixed with the profession's coined lingo as "chiroprattle" and declared that its purpose was to pitch treatments that produced no demonstrated health benefits.

The book generated the posting of sixty-six reviews on Amazon.com. Fifty-one of the reviewers gave the book Amazon's lowest rating, and almost all of these included *ad hominem* attacks. Chotkowski's son, John, says that at the time, "My father was unconcerned about any critic's comments. He was confident that nothing that he had written in the book could be proved as wrong."

As anti-chiropractic as Chotkowski was, he also believed that people should have the freedom to choose chiropractic treatment if they wished it—provided that the decision wasn't founded in deception. He held that both freedom of speech and freedom of inquiry were necessary for any society to discover where science could lead.

In 1989, he spoke at the International Human Rights Conference in Krakow, Poland, where he met with



Ludmil A. Chotkowski

Lech Walesa, the founder of the Solidarity movement. When Walesa visited the U.S. in 1996, Chotkowski hosted his visit in Connecticut and later worked to have a Connecticut park named in his honor.

Chotkowski served as Chief of Medicine at the Rocky Hill Veterans Hospital and was Medical Director of Connecticut State Medical Hospital. As a physician who witnessed the horrors of 20,000 polio cases a year during the early 1950s, he worked tirelessly to establish the first polio vaccination clinic for children in Connecticut in 1955. Chotkowski also remained firm in his opinion that anti-vaccination "pediatric" chiropractors were tantamount to child abusers. Chotkowski's son remembers that his father's foremost concern was that when he voiced an opinion, it was based on demonstrable facts. His second concern was always, "Is anyone listening?"

—Frank Reiser

Frank Reiser teaches in the Department of Biology at Nassau Community College in Garden City, New York.

Kansas Professor Relieved of His Chair Over Comments Critical of Intelligent Design

A furor has erupted over a graduate-level course that was to be offered at the University of Kansas in the Spring 2006 semester and some comments that were made by its proposed instructor, Paul Mirecki, a professor in the Department of Religious Studies at the university and, until recently, that department's chairperson.

Mirecki, in response to the decision of the Kansas Board of Education to mandate the teaching of alternatives to evolution as an explanation for life on Earth and its diversity (at the primary- and secondary-education levels), proposed a course at K.U. that was to have been titled "Special Topics in Religion: Intelligent Design, Creationism, and Other Religious Mythologies," although those last four words were later dropped at the advice of other professors.

The course, in and of itself, didn't attract any attention until some comments that Mirecki made in a private e-mail to the Society for Open-Minded Atheists and Agnostics, a student organization that he advises, became public: "The fundies want it all taught in a science class, but this will be a nice slap in their big fat face by teaching it as a religious studies class under the category 'mythology'." The message was signed: "Doing my part to piss off the religious right, Evil Dr. P."

The course has since been withdrawn, and Mirecki later apologized for his remarks, terming them "ill-advised," according to a report in the *Lawrence Journal-World* on November 29, 2005. But the controversy didn't end there. Mirecki has been relieved of his post as chair of the department; his colleague, Timothy Miller, is currently serving as acting chair. Mirecki says that he was forced out: a report dated

New Center for Inquiry Research Building Completed

The new addition to the Center for Inquiry–*Transnational*'s headquarters in Amherst, New York, has been completed. The 15,600-square-foot research building includes new offices, an executive meeting room, and three seminar rooms that can be opened up into a large conference hall. The three buildings of the Center for Inquiry now total some 35,000 square feet on seven and a half acres of land. And there are additionally three residences for research faculty, students, and foreign visitors. The research park is adjacent to the Amherst campus of the University at Buffalo, a part of the State University of New York.

The new building also contains additional space for the Center for Inquiry libraries and archives. Among recent additions to the libraries are the books and papers of philosophers Paul Edwards and Richard Taylor, Martin Gardner's collection on skepticism and the paranormal, and extensive correspondence, commentary, and news clippings of Steve Allen.

The libraries already contain over 65,000 books and monographs, many not heretofore shelved because of the previous lack of space.

The new wing also houses the offices of CFI's Transnational Programs, including African Americans for Humanism and the Institute for the Secularization of Islamic Society (ISIS). The building contains offices for research fellows of the Center for Inquiry Institute, Campus and Community Programs, grants and special projects, and the studio of CFI's new radio show and podcast, *Point of Inquiry*.

There are now some eighteen Centers for Inquiry at various stages of development around the world and sixteen CFI Communities in North America.

The new research wing was built as part of the ongoing $26.25 million Fund for the Future expansion plan that was announced three years ago. The building will be officially dedicated in April of 2006 (see page 13).

—Paul Kurtz

Paul Kurtz is Chair of the Center for Inquiry–Transnational.

December 11, 2005, at CNN.com, states that according to Mirecki: " . . .he had no choice when he signed the resignation letter, typed on stationery from the dean of the College of Liberal Arts and Sciences." But officials of the school say that he resigned voluntarily, at the recommendation of some of his colleagues. Mirecki remains a professor in the department, where he has been employed as an instructor since 1989.

Mirecki faults the school for not standing behind him, thereby failing to reinforce his academic freedom and First Amendment rights under the Constitution, and cites damages to his career. He had, at last report, retained an attorney.

Some members of the state's legislature are calling for formal hearings in January, when the legislature resumes its sessions. Mirecki could be sanctioned or dismissed from his teaching post as a result, if such a process takes place. Members of the Kansas State Legislature have met with K.U.'s chancellor, Robert Hemenway, to discuss the matter.

And for Mirecki, the damage wasn't limited to his academic career: he was assaulted in the early morning of December 5, 2005, on a rural roadside near Lawrence (Kansas) by a pair of men who left afterward in a pickup truck. Mirecki states that he pulled over after the men tailgated him and that the men mentioned the religious-studies course during the assault. Mirecki, who was beaten with their fists and possibly a metal object, suffered bruises, two black eyes, and a broken tooth. He was treated and released by a local hospital. Officials of the Douglas County Sheriff's Department have termed the case aggravated battery, and the investigation was continuing, according to an Associated Press report dated December 6, 2005.

—David Park Musella

David Park Musella is an editorial assistant with the SKEPTICAL INQUIRER.

Carla Baron Psychic Detective Update

Over the past twenty years, Carla Baron, a self-described psychic detective, claims to have solved some fifty cases using her psychic abilities. In 2003 and 2004, the Independent Investigations Group at the Center for Inquiry–*West* looked into all her claims for which sufficient public information was available.

One case that has recently made headlines again is that of Manuel Gehring, of Concord, New Hampshire. Gehring told police that he had shot his two children in his van sometime after a fireworks display on July 4, 2003. He said that he left Concord and drove to what he thought was Ohio and buried their bodies in shallow graves somewhere along Interstate 80.

In a press release issued by Carla Baron on October 9, 2003, she states that the bodies are likely to be found near New Hampshire. Exactly what the words *likely* and *near* mean, in this case, is anyone's guess. This statement is typical of the broad net that alleged psychics cast: even if they are wrong, it appears that they are right.

Yet it was not psychic powers but perseverance that led to the childrens' remains. On December 1, 2005, a woman in the town of Hudson, Ohio, some 630 miles from Concord, found the bodies of the two children in shallow graves along Interstate 80. The woman had searched for the children more than forty times, and had made the recovery a personal mission. Despite Manuel Gehring's claim that he buried them in Ohio, Baron insisted that the purchase of digging implements in Pennsylvania and his claim that he'd buried the bodies in or near Ohio was a ruse intended to keep the police from finding the actual gravesites nearer New Hampshire. It's interesting to note that a follow-up search of Baron's Web site no longer finds any mention of the case. Although the IIG was not able to get information on some of her claims, the ones that they could get information on had either been solved without her involvement or remain unsolved. In cases like these, bodies are found either through accident or hard work—not by vague psychic impressions.

The IIG's complete report is available for review at www.iigwest.org.

—*Vaughn Rees*

Vaughn Rees is an investigator with the Independent Investigations Group.

CSICOP'S 30th Anniversary and Dedication of the Center For Inquiry's New Building

MARCH 31 AND APRIL 1, 2006

Event Schedule

CFI CENTER FOR INQUIRY *Transnational*

Friday, March 31

Reception 6:00 PM
Opening Remarks by Paul Kurtz 7:00–7:30 PM

Saturday, April 1

CSICOP: 30 Years and Beyond 9:00 AM–1:00 PM
Featuring James Alcock • Barry Beyerstein • Amardeo Sarma • Ken Frazier
Lee Nisbet • Thomas Casten • Joe Nickell

Lunch Break 1:00–2:00 PM

Dedication of the New Center for Inquiry Building 2:00–5:00 PM
Featuring Eddie Tabash • Jan Eisler • David Koepsell • Barry Karr • Tom Flynn
Saturday Evening Keynote (Speaker TBA) 5:00–6:00 PM

$69 for the entire weekend's events

CSICOP **Contact Barry Karr at (716) 636-1425, ext. 217, or bkarr@centerforinquiry.net for more information.**

'We Find That ID Is Not Science': Excerpts from the Dover Federal Court Ruling on Intelligent Design

Here are excerpts from the body of U.S. District Judge John E. Jones III's 139-page ruling in the Kitzmiller et al. v. Dover (Pennsylvania) Area School District *court case regarding the teaching of Intelligent Design in public school science classes. Numerals in brackets refer to page numbers of the official document. The Conclusions section of the ruling appears on p. 5* [News & Comment].

Dramatic evidence of ID's religious nature and aspirations is found in what is referred to as the "Wedge Document." The Wedge Document, developed by the Discovery Institute's Center for Renewal of Science and Culture (hereinafter "CRSC"), represents from an institutional standpoint the IDM's [intelligent design movement's] goals and objectives, much as writings from the Institute for Creation Research did for the earlier creation-science movement, as discussed in *McLean*. . . . [28]

The CSRC expressly announces, in the Wedge Document, a program of Christian apologetics to promote ID. A careful review of the Wedge Document's goals and language throughout the document reveals cultural and religious goals, as opposed to scientific ones. [29]

[W]e find that the classroom presentation of the disclaimer, including school administrators making a special appearance in the science classrooms to deliver the statement, the complete prohibition on discussion or questioning ID, and the "opt out" feature, all convey a strong message of religious endorsement. [47]

In summary, the disclaimer singles out the theory of evolution for special treatment, misrepresents its status in the scientific community, causes students to doubt its validity without scientific justification, presents students with a religious alternative masquerading as a scientific theory, directs them to consult a creationist text as though it were a science resource, and instructs students to forego scientific inquiry in the public school classroom and instead to seek out religious instruction elsewhere. [49]

* * *

4. Whether ID is Science

After a searching review of the record and applicable case law, we find that while ID arguments may be true, a proposition on which the Court takes no position, ID is not science. We find that ID fails on three different levels, any one of which is sufficient to preclude a determination that ID is science. They are: (1) ID violates the centuries-old ground rules of science by invoking and permitting supernatural causation; (2) the argument of irreducible complexity, central to ID, employs the same flawed and illogical contrived dualism that doomed creation science in the 1980's; and (3) ID's negative attacks on evolution have been refuted by the scientific community. As we will discuss in more detail below, it is additionally important to note that ID has failed to gain acceptance in the scientific community, it has not generated peer-reviewed publications, nor has it been the subject of testing and research. [64]

It is notable that defense experts' own mission, which mirrors that of the IDM [intelligent design movement] itself, is to change the ground rules of science to allow supernatural causation of the natural world, which the Supreme Court in *Edwards* and the court in *McLean* correctly recognized as an inherently religious concept. First, defense expert Professor Fuller agreed that ID aspires to "change the ground rules" of science, and lead defense expert Professor [Michael] Behe admitted that his broadened definition of science, which encompasses ID, would also embrace astrology. Moreover, defense expert Professor Minnich acknowledged that for ID to be considered science, the ground rules of science have to be broadened to allow consideration of supernatural forces. [67–68]

* * *

In addition to Professor Mehe's admitted failure to properly address the very phenomenon the irreducible complexity purports to place at issue, natural selection, Drs. [Kenneth] Miller and [Kevin] Padian testified that Professor Behe's concept of irreducible complexity depends on ignoring ways in which evolution is known to occur. . . .

As expert testimony revealed, the qualification on what is meant by "irreducible complexity' renders it meaningless as a criticism of evolution. In fact, the theory of evolution proffers exaptation as a well-recognized, well-documented explanation for how systems with multiple parts could have evolved through natural means. Exaptation means that some precursor of the subject system had a different, selectable function before experiencing the change or addition that resulted in the subject system with its present function. For instance, Dr. Padian identified the evolution of the mammalian middle ear bones from what had been jawbones as an example of the process. By defining irreducible complexity in the way that he has, Professor Behe attempts to exclude the phenomenon by definitional fiat, ignoring as he does so abundant evidence which refutes his argument. [75]

As irreducible complexity is only a negative argument against evolution, it is refutable and accordingly testable, unlike ID, by showing that there are intermediate structures with selectable functions that could have evolved into the allegedly irreducibly complex systems. Importantly, however, the fact that the negative argument of irreducible complexity is testable does not make testable the argument for ID. Professor Behe has applied the concept of irreducible complexity to only a few select systems: (1) the bacterial flagellum; (2) the blood-clotting cascade; and (3) the immune system. Contrary to Professor Behe's assertions with respect to these few biochemical systems among the myriad existing in nature, however, Dr. Miller presented evidence, based upon peer-reviewed studies, that they are not in fact irreducibly complex. [76]

First, with regard to the bacterial flagellum, Dr. Miller pointed to peer-reviewed studies that identified a possible precursor to the bacterial flagellum, a subsystem that was fully functional, name the Type-III Secretory System. . . .

Second, with regard to the blood-clotting cascade, Dr. Miller demonstrated that the alleged irreducible complexity of the blood-clotting cascade has been disproven by peer-reviewed studies dating back to 1969, which show that dolphins' and whales' blood clots despite missing a part of the cascade, a study that was confirmed by molecular testing in 1998. Additionally and more recently, scientists published studies showing that in puffer fish, blood clots despite the cascade missing not only one, but three parts. Accordingly, scientists in peer-reviewed publications have

refuted Professor Behe's predication about the alleged irreducible complexity of the blood-clotting cascade. . . . [77]

The immune system is the third system to which Professor Behe has applied the definition of irreducible complexity. . . . However, Dr. Miller presented peer-reviewed studies refuting Professor Behe's claims that the immune system was irreducibly complex. Between 1996 and 2002, various studies confirmed each element of the evolutionary hypothesis explaining the origin of the immune system. . . . [78]

We therefore find that Professor Behe's claim for irreducible complexity has been refuted in peer-reviewed research papers and has been rejected by the scientific community at large. Additionally, even if irreducible complexity had not been rejected, it still does not support ID as it is merely a test for evolution, not design. [79]

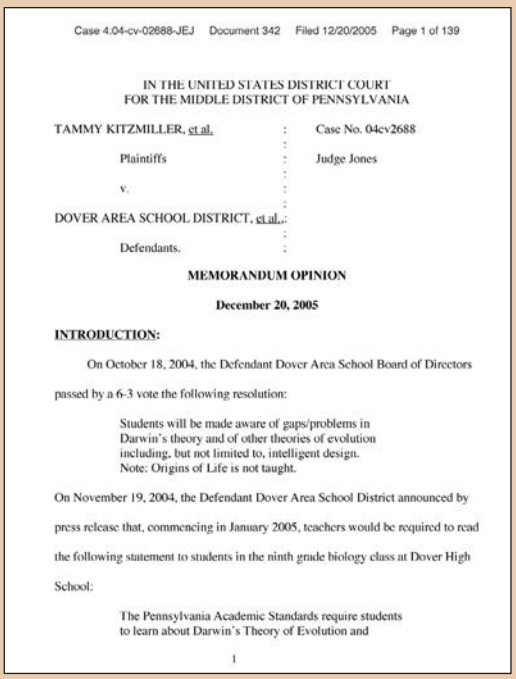
Before discussing Defendants' claims about evolution, we initially note that an overwhelming number of scientists, as reflected by every scientific association that has spoken on the matter, have rejected the ID proponents' challenge to evolution. Moreover, Plaintiffs' expert in biology, Dr. Miller, a widely-recognized biology professor at Brown University who has written university-level and high school biology textbooks used prominently throughout the nation, provided unrebutted testimony that evolution, including common descent and natural selection, is "overwhelmingly accepted" by the scientific community and that every major scientific association agrees. [83]

Plaintiffs' science experts, Drs. Miller and Padian, clearly explained how ID proponents generally and [the ID book] *Of Pandas and People* specifically, distort and misrepresent scientific knowledge in making their anti-evolution argument. [84]

* * *

The evidence presented in this case demonstrates that ID is not supported by any peer-reviewed research, data, or publications. Both Drs. Padian and [Barbara] Forrest testified that recent literature reviews of scientific and medical-electronic databases disclosed no studies supporting a biological concept of ID. On cross-examination, Professor Behe admitted that: "There are no peer-reviewed articles by anyone advocating for intelligent design supported by pertinent experiments or calculations which provide detailed rigorous accounts of how intelligent design of any biological system occurred." Additionally, Professor Behe conceded that there are no peer-reviewed papers supporting his claims that complex molecular systems, like the bacterial flagellum, the blood-clotting cascade, and the immune system, were intelligently designed. In that regard, there are no peer-reviewed articles supporting Professor Behe's argument that certain complex molecular structures are "irreducibly complex." In addition to failing to produce papers in peer-reviewed journals, ID also features no scientific research or testing.

Judge John E. Jones III



Case 4.04-cv-02688-JEJ Document 342 Filed 12/20/2005 Page 1 of 139

IN THE UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF PENNSYLVANIA

TAMMY KITZMILLER, et al. : Case No. 04cv2688
: Plaintiffs : Judge Jones
: v. :
: DOVER AREA SCHOOL DISTRICT, et al.: Defendants.

MEMORANDUM OPINION

December 20, 2005

INTRODUCTION:

On October 18, 2004, the Defendant Dover Area School Board of Directors passed by a 6-3 vote the following resolution:

> Students will be made aware of gaps/problems in Darwin's theory and of other theories of evolution including, but not limited to, intelligent design. Note: Origins of Life is not taught.

On November 19, 2004, the Defendant Dover Area School District announced by press release that, commencing in January 2005, teachers would be required to read the following statement to students in the ninth grade biology class at Dover High School:

> The Pennsylvania Academic Standards require students to learn about Darwin's Theory of Evolution and

1

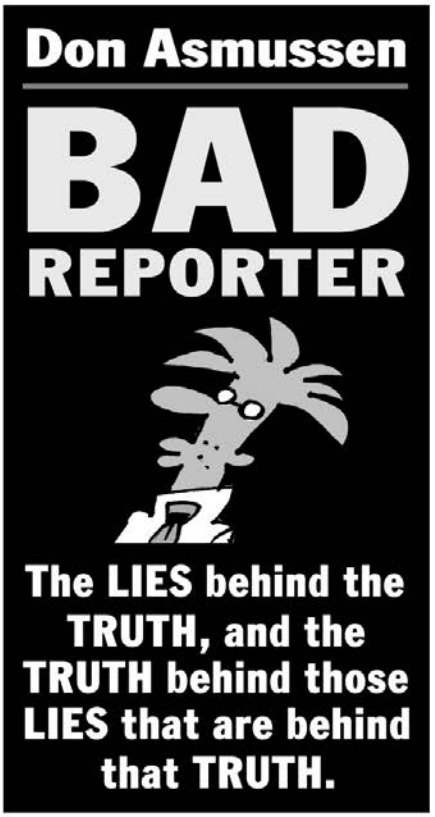
After this searching and careful review of ID as espoused by its proponents, as elaborated upon in submissions to the Court, and as scrutinized over a six-week trial, we find that ID is not science and cannot be adjudged a valid, accepted scientific theory, as it has failed to publish in peer-reviewed journals, engage in research and testing, and gain acceptance in the scientific community. ID, as noted, is grounded in theology, not science. Accepting for the sake of argument its proponents', as well as Defendants' argument that to introduce ID to students will encourage critical thinking, it still has utterly no place in a science curriculum. Moreover, ID's backers have sought to avoid the scientific scrutiny which we have now determined that it cannot withstand by advocating that the *controversy*, but not ID itself, should be taught in science class. This tactic is at best disingenuous, and at worst a canard. The goal of the IDM is not to encourage critical thought, but to foment a revolution which would supplant evolutionary theory with ID.

To conclude and reiterate, we express no opinion on the ultimate veracity of ID as a supernatural explanation. However, we commend to the attention of those who are inclined to superficially consider ID to be a true "scientific" alternative to evolution without a true understanding of the concept the foregoing detailed analysis. It is our view that a reasonable, objective observer would, after reviewing both the voluminous record in this case, and our narrative, reach the inescapable conclusion that ID is an interesting theological argument, but that it is not science. [87–89]

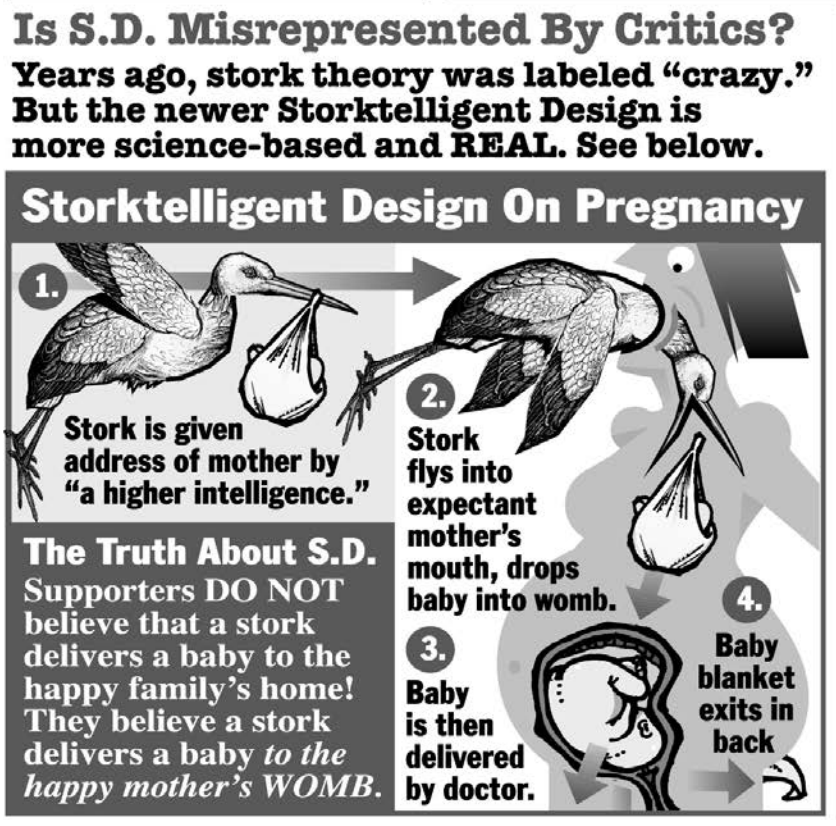
The Board consulted no scientific materials. The Board contacted no scientists or scientific organizations. The Board failed to consider the views of the District's science teachers. The Board relied solely on legal advice from two organizations with demonstrably religious, cultural, and legal missions, the Discovery Institute and the TMLC. Moreover, Defendants' asserted secular purpose of improving science education is belied by the fact that most if not all of the Board members who voted in favor of the biology curriculum change conceded that they still do not know, nor have they ever known, precisely what ID is. To assert a secular purpose against this backdrop is ludicrous. [131]

Any asserted secular purposes by the Board are a sham and are merely secondary to a religious objective. [132]

Defendants' previously referenced flagrant and insulting falsehoods to the Court provide sufficient and compelling evidence for us to deduce that any allegedly secular purposes that have been offered in support of the ID Policy are equally insincere. Accordingly, we find that the secular purposes claimed by the Board amount to a pretext for the Board's real purpose, which was to promote religion in the public school classroom, in violation of the Establishment Clause. [132] □



The Times
'STORK THEORY' TO BE TAUGHT ALONGSIDE PREGNANCY THEORY IN KANSAS SCHOOLS
STORY CREATED TO AVOID EXPLAINING SEX TO KIDS NOW FINDING RESPECT AS 'STORKTELLIGENT DESIGN'
Angry biologists argue that S.D. breaks down when trying to explain who or what delivers stork babies.


Is S.D. Misrepresented By Critics?
Years ago, stork theory was labeled "crazy." But the newer Storktelligent Design is more science-based and REAL. See below.
Storktelligent Design On Pregnancy
1.
Stork is given address of mother by "a higher intelligence."
2.
Stork flys into expectant mother's mouth, drops baby into womb.
3.
Baby is then delivered by doctor.
4.
Baby blanket exits in back
The Truth About S.D.
Supporters DO NOT believe that a stork delivers a baby to the happy family's home! They believe a stork delivers a baby to the happy mother's WOMB.

Is Theory Deadly?
Current events force S.D. advocates to shelve plans ...
AVIAN FLU SCARE FORCES KANSAS TO POSTPONE ALL BIRTHS
'STORKS MIGHT BE CARRIERS' SAYS BUSH
STAFF REPORT
"We must face the stork reality of the situation."

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Commentary on John P.A. Ioannidis's 'Why Most Published Research Findings are False'

RAY HYMAN

In his provocative essay "Why Most Published Research Findings are False," John P.A. Ioannidis begins with the assumption that most research conclusions are false. He then creates a model to explain this state of affairs.[1] He defines a *research finding* as "any relationship reaching formal statistical significance, e.g., effective interventions, informative predictors, risk factors, or associations." As the editors of *PLoS Medicine* note, Ioannidis's definition fails to distinguish findings about data, conclusions, and hypotheses.[2]

Despite this and other quibbles about Ioannidis's essay, his model provides a useful framework for examining research claims in various domains of inquiry. I found it instructive, for example, to apply his model to the field of parapsychological research. Ioannidis points out that previous writers have argued "that the high rate of nonreplication (lack of confirmation) of research discoveries is a consequence of the convenient, yet ill-founded strategy of claiming conclusive research findings solely on the basis of a single study assessed by formal statistical significance, typically for a *p*-value less than 0.05."

Parapsychology is a field that depends exclusively for its conclusions on the significance test. J.B. Rhine advocated using the 0.01 level of significance because of the unusual nature of the psi claim. More recently, however, parapsychologists have been routinely using the 0.05 level. This change in the standard for rejecting the null hypothesis increases the number of false research findings by a factor of five. Ioannidis's model suggests other factors that would inflate the rate of false findings in psi research.

The level of significance chosen for the null hypothesis test, by itself, does not tell us the probability that the research finding is false. As I have written elsewhere,[3] the null hypothesis test entails serious logical problems. What the investigator wants to know is the *probability that the null hypothesis is true given the observed outcome*. Unfortunately, the test does not provide this information. Instead, the statistical test states *the probability of the observed outcome given that the null hypothesis is true*. This seemingly subtle distinction has important consequences that researchers routinely ignore. The most important consequence is that we need to consider the *prior or pre-study probability that a finding will be true* to find the posterior or post-study probability that the finding is true.

This principle underlies the famous and controversial Bayes Theorem. This theorem provides a way to revise the original probability that a finding is true given the new data provided by an experiment. The controversy arises because the prior or original probability is often difficult to determine. The relationship between the pre-study probability and the post-study probability is central to Ioannidis's model. This is because for a given level of significance, the probability that a research finding is false increases for lower pre-study probabilities.

We need to consider the prior or pre-study probability that a finding will be true to find the posterior or post-study probability that the finding is true.

Consider parapsychological research findings. Most scientists would consider the prior odds that psi is true as quite low. In the Ioannidis model, the post-study probability that a research finding is false increases as the pre-study plausibility of

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that finding goes down, as the significance level goes up, and as the power of the test goes down. Parapsychological claims begin life with low plausibility. Parapsychologists typically complain about the low power that characterizes their studies.[4] The low pre-study probability that psi is real, increasing the significance level from 0.01 to 0.05, and the low power of psi research, guarantees that most of the research findings in parapsychology will be false. This is only part of the story.

Ioannidis includes much more in his model. The model considers bias and also the effects of testing the same association by several independent teams. Ioannidis defines *bias* as "the combination of various design, data, analysis, and presentation factors that tend to produce research findings when they should not be produced." Bias increases the probability that research findings will be false. Readers who are familiar with my critiques of parapsychological research[5] are aware that I have focused on various flaws that create bias. The biases are just the kinds that, according to the model, greatly enhance the probability that research findings will be false.

In this brief commentary, I will consider just one corollary that follows from Ioannidis's model. This corollary states that, "The smaller the studies conducted in a scientific field, the less likely the research findings are to be true." In other words, a field that conducts many studies with low power will generate many false findings. Ironically, this corollary directly conflicts with the positions of parapsychologists such as Utts and Radin. These commentators argue that the reason that parapsychological research findings may be unreplicable is that they have low power. By pooling studies, the meta-analysis becomes a powerful tool, in their opinion, to show that psi effects, however small, are real.

I have documented a variety of flaws that plague parapsychological research. For the most part, parapsychologists have not denied the existence of such flaws.

Ioannidis uses his model to make the opposite point. According to him, in fields where most of the studies have low power and where the alleged effects are small, "the field is likely to be plagued by almost ubiquitous false claims. . . . " His simulations show that "a meta-analytic finding from inconclusive studies where pooling is used to 'correct' the low power of single studies, is probably false if *R* [the pre-study odds of being true] is less than or equal to 1:3." This means that if the pre-study probability of a research outcome being true is less than .25, then a significant outcome of a meta-analysis is probably false. Although we do not know the actual pre-study probability that a significant outcome in favor of psi is true, it is reasonable to suppose that it would be much, much smaller than .25.

During my fifty years as a critic of paranormal claims, I have documented a variety of flaws that plague parapsychological research. For the most part, parapsychologists have not denied the existence of such flaws. The most typical defense is to argue that a given flaw, by itself, would be insufficient to account for all the findings.

The parapsychologists could be correct; any given flaw, by itself, may very well be insufficient to account for all the significant parapsychological findings. However, that is not my point. Let's assume that each flaw contributes just a very small amount of bias. The question is, what is the total bias produced by the combination of all these minor biases operating in concert? I tried to answer this question for a few of the flaws that I identified with respect to testing significance in the original ganzfeld psi data base.[6] I ran a simulation using a few of the flaws. The studies in this data base tested their outcomes using the 0.05 level of significance. The simulation showed that, in effect, the experimenters were operating with a significance level of .30 or higher. The false alarm rate was more than six times what was advertised! This simulation used only a few of the flaws and weaknesses I uncovered in that database.

Ioannidis has given us a valuable tool for quantifying the probabilities that the findings from a series of investigations in a given field will be false. Hopefully, this will lead to additional and better ways to gauge how many results from a given program of research are spurious.

Indeed, Ioannidis indicates that the significant results and effect sizes that go with them in certain fields may simply reflect nothing more than bias.

Notes

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4. For example: Utts, J. 1991. Replication and meta-analysis in parapsychology. Statistical Science, 6, 363–403 and Radin, D. 1997. *The Conscious Universe: The scientific Truth of Psychic Phenomena*. NY: HarperEdge.

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Argentina Mysteries

While visiting Argentina for the 2005 *Primera Conferencia Iberoamericana Sobre Pensamiento Crítico* ("First Latin American Conference on Critical Thinking") in Buenos Aires, I was also able to take a look at some local mysteries with which I already had some familiarity. These included a haunted cemetery, miracles of popular saints, and tales of animal mutilation by the dreaded chupacabras. Here is a brief look at each in turn.

Haunted Cemetery

It is a memorable sight: "a city within a city," as one writer describes it (Winter 2001). Actually, it is a city of the dead, a necropolis consisting of narrow alleys lined with ornate crypts and mausoleums. Given its roster of burials of the rich and powerful, it is said that "For the living and dead alike, Recoleta is Buenos Aires's most prestigious address" and "one of the world's grandest graveyards" (Bernhardson 2004, 72). (See figure 1.)

Figure 1. Recoleta Cemetery in Buenos Aires is a grand city of the dead. (Photo by Joe Nickell)

I visited the memorable Cementerio de la Recoleta on September 14, in part to view the crypt of Eva Perón. (The late actress-turned-controversial-first-lady is discussed in the next section of this article.) An Internet search had turned up a cautionary remark: "Everybody will tell you the stories about this interesting place, but don't believe all of them; ghosts don't walk there at night" (Fodors 2004). Sure enough, two days after my visit, a local guide told me just such a tale about the cemetery.

As the story goes, one night a man met a woman in the neighborhood, and the pair went to the cemetery for a tryst. She borrowed a jacket from him but then suddenly ran away. He followed, searching for her. Eventually, he found his jacket at a crypt bearing a picture of a young woman who was entombed there. It was the same young lady!

The guide who related the tale, Paola Luski (2005), told me she was dubious of it. She said one reason to question the story was the general absence of pictures of the deceased at the tombs of Recoleta.

More important, the tale seems especially doubtful because of its obvious similarity to the widespread "Vanishing Hitchhiker" urban legend (albeit without that story's automobile). Shared narrative elements (or *motifs* as folklorists say) include the meeting of the pair, their linking up, the young lady's disappearance, and the cemetery as the final destination and scene of revelation. The jacket (like the coat, sweater, etc., present in some versions of the proliferating hitchhiker tale) is clearly

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intended to provide verisimilitude (a sense of truthfulness) to the story, and it represents an unmistakable link with the famous roadside-phantom narrative.

Thus, the Recoleta tale is simply another variant of the ubiquitous legend which has antecedents as far back as 1876. As American folklorist Jan Harold Brunvand (1981, 21) points out, multiple versions of a tale provide "good evidence against credibility."

Popular Saints

Until quite recently, Roman Catholicism was the official religion of Argentina, and it still dominates the daily lives of its people. In addition to their formal faith, however, Argentinians often seek help from a number of popular, unofficial saints. They represent a spreading folk Catholicism that often diverges from orthodoxy and even includes spiritualist practices.

Like official saints, the popular variety are often believed to work miracles. For instance, there is "the Robin Hood of Corrientes," the gaucho, Antonio Gil. An army deserter in the 1850s, Gil was hanged on an *espinillo* tree but before dying he supposedly warned the commanding sergeant that his son would become deathly ill and could only recover by means of the sergeant praying for Gil's soul. Upon the boy's recovery, his repentant father carved an *espinillo* cross which he placed at Gil's death site. Today, as many as 100,000 pilgrims visit the site on the anniversary of his death and credit Gaucho Gil with miracles and life-transforming experiences (Bernhardson 2004, 186, 273, 606).

Even more popular than Gil is legendary Maria Antonia Deolinda Correa, known as the Difunta (meaning "Defunct" as the deceased are called in the countryside). A pious legend tells how she followed her husband, a conscript during the civil wars of the nineteenth century, and died in the desert of thirst. However, when her body was discovered by passing muleteers, her infant son was found alive, "miraculously" feeding at her lifeless breast.

Adding to the implausibility of an infant surviving on milk from a corpse is the limited evidence that the Difunta even existed. Nevertheless, the legend was so resonant among the local folk that they transformed the waterless site into a shrine. Today it is visited by pilgrims who stand in line to visit a chamber which holds an effigy of the prostrate Difunta with her infant at her breast (Bernhardson 2004, 273–274).

There are many other popular saints including the faith healer Madre María Salomè. Sardonically, novelist Thomás Eloy Martinez has called his fellow Argentines "cadaver cultists" for being so devoted to the dead (Bernhardson 2004, 606–607). Not all of the unofficial saints, however, are widely believed to work miracles, and perhaps the most famous—or infamous—of all has had her status slip.

Alternately reviled and beloved as "Evita," Maria Eva Duarte Perón (1919–1952) was the controversial first lady of Argentina from the election of her husband Juan Perón in 1946 until her death from cancer in 1952. A former film actress, she lent her charisma and ambition to the popular causes of assisting the poor, of improving education, and helping to achieve woman's suffrage. Nevertheless, Perón's increasingly demagogic methods cost him the support of the Catholic Church, and his wife's death diminished his appeal among workers. He was ousted by the military in 1955.

In her last speech, she had stated, "I will be with my people, dead or alive." Perón helped the mythologizing process by having her body mummified and placed on display while a monument was being prepared. A popular movement sought to have the Church make her a saint. Her followers installed altars to "Santa Evita" in their homes, and over 100,000 requests for her canonization flooded the Vatican, many crediting her with the requisite miracles (McInnis 2001; Fouché 2002; Evita 2005; Mosca 2005).

Instead, after Perón was deposed in 1955, the Church conspired with the new regime to spirit away her body. It was buried in Milan, Italy, by the sisters of the Society of St. Paul. There, under the false name Maria Maggi, it reposed for fourteen years. Meanwhile the anti-Peronists attempted to efface her memory, tearing down statues of her and burning copies of her autobiography, *The Sense of My Life*.

In April 1971, however, the Argentine president ordered what has been called "the world's most beautiful corpse" returned to Perón, who was living with his third wife, Isabel, in Madrid (Which Coffin 1978). According to journalist Wayne Bernhardson (2004, 73), Perón's "bizarre spiritualist adviser" Jose López Rega—known as "The Witch"—"used the opportunity to try to transfer Evita's essence into Isabelita's body." (After Perón's brief return to power in 1973 and his death the following year, Isabel succeeded him but was soon deposed by the military.)

I visited several related sites, including the Museo Evita, where the controversial First Lady is honored. It appears that claims of miracles have largely abated. However, one writer concludes (Morrison 2005):

> Though efforts to have her made into a saint have been turned down by the Vatican, Evita still holds near to saint status in Argentina. Slogans proclaiming *Evita Vive!* (Evita Lives!) can be seen everywhere even today in a new century. At her family crypt in the Recoleta Cemetery in Buenos Aires, supporters and pilgrims still leave flowers, and a continual guard is kept to prevent vandalism.

Questions remain: Were none of the miracles by Santa Evita authentic? Were they rejected for lack of merit, or dismissed out of hand for political reasons? How does the Church reject her but canonize Mexico's Juan Diego? (He is the legendary—possibly fictitious—figure on whose cloak the Virgin Mary "miraculously" imprinted her image, but which is, in fact, painted [Nickell 2002].) Are *any* miracle claims credible, officially sanctioned or not?

El Chupacabra

The face of the Argentine *pampas* (plains) was altered in the sixteenth century by the arrival of feral livestock that displaced the native rhea (American ostrich) and guanaco (ancestor of the llama and alpaca). The Spaniards brought such domestic animals as horses, cattle, sheep, pigs, and poultry (Bernhardson 2004, 633).

In recent years, the "animal mutilation" hype that burgeoned in the mid-1970s in the United States struck Argentina. Like its northern counterpart, the South American version of the phenomenon was often attributed to extraterrestrials, especially the bloodthirsty *El Chupacabra* ("goat sucker"). That creature was described by the Cox News Service (April 1996) as "part space alien, part vampire, and part reptile, with long sharp claws, bulging eyes, and a Dracula-like taste for sucking blood from neck bites."

The chupacabra is traceable to Puerto Rico, where it "spawned something near hysteria"; then the myth spread to Mexico and still later to Florida—all via the Spanish-language media. Its further migration is no surprise. Involving major livestock areas, the reported mutilations sparked conspiracy theories by UFOlogists, journalists, and local workers. Typical of the reports I collected was "Chupacabras Attack Ranches in Argentina" (Trainor 2000).

Actually, however, animal mutilation claims have consistently been countered with prosaic explanations. For example, a rash of cattle mutilations in the western United States during the 1970s was carefully investigated and attributed to the work of predators and scavengers (Frazier 1980; Nickell 1995, 115). And when the chupacabra scare reached Mexico in April 1996, a scientific team staked out farmyards where the goatsucker had reportedly struck. Wild dogs were caught each time (Nickell 2004, 29).

As I would discover, Argentina was no exception. I was able to spend a day at a horse ranch in the pampas north of Buenos Aires. In addition to having an open-pit barbecue lunch, going horseback riding, and experiencing other entertainments, I was able to talk with the head gaucho who told me (with my guide translating) that the chupacabra claims were nonsense and that there were certainly no such mutilations of horses at this ranch or any credible attacks on cattle or other livestock nearby (Romero 2005). One of the five brothers who owns the ranch was similarly dismissive of the idea that chupacabras were on the loose (Rossiter 2005).

Figure 2. A "mutilated" ram. (Photo by Argentine journalist Gabriel Alcalde.)

At the conference, I met journalist Gabriel Alcalde of Santa Rosa who generously shared his knowledge of the local phenomenon. He related that almost 100 cases of animal mutilation were reported in La Pampa and Buenos Aires provinces between May and August 2002. (See figure 2.) However, he noted that research conducted by the National Service for Food and Agriculture (SENASA), with the Veterinary College of National University of the Center of the Province of Buenos Aires (as well as other universities in the area where mutilated livestock were found), had found mundane explanations. In a report SENASA concluded:

> The deaths can be attributed to natural causes. Under direct and close observation it could be ascertained that the injuries to the tissues and organs were caused by predators. Histological studies done on the carcasses showed conclusively that no special tools had been used to produce the cuts, e.g., cauterizing scalpels.

The conclusion was that the animals' deaths were due to natural causes, such as alimentary deficiencies, and that the mutilations were subsequently caused by predators, including field mice. The report stated that "in all the cases under review there were traces of bird, carrion (fox), and rodent (mice) feces on the carcasses and near the dead animals."

And so the chupacabras were vanquished, although Gabriel Alcalde pointed out that many Argentines denied the scientific evidence and "continued to believe the spellbinding stories concocted by the media." He told me that he felt the real mutilation was that which had been done to critical thinking.

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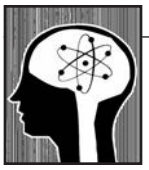

Is Evolutionary Psychology a Pseudoscience?

Evolutionary psychology is the most current incarnation of what started out as sociobiology, a branch of evolutionary theory aimed at explaining the behavior of animals (and in particular, humans) as the result of evolutionary processes, especially natural selection. The turning point for this research program was the publication in 1975 of *Sociobiology: The New Synthesis*, by Edward O. Wilson, a first-rate student of social insects. Wilson's book would have raised little controversy, if it were not for the last chapter, where he extended his approach to human beings, which he did more fully in 1978 with his *On Human Nature*.

The debate that ensued was ideologically and politically biased on both sides, and it included ugly episodes such as Stephen Gould publishing two negative reviews of Wilson's book (a behavior that borders on the unethical), and of course, the famous instance of Wilson being treated to a shower of cold water and ice by an activist student attending a scientific meeting.

On the other side of the divide, sociobiology's cause has not been helped by the publication of borderline intellectually sound works such as Herrnstein and Murray's *The Bell Curve: Intelligence and Class Structure in American Life*, with its largely unsubstantiated claims about genetic determinism of human cognitive traits, and Thornhill and Palmer's *A Natural History of Rape: Biological Bases of Sexual Coercion*, which fared only slightly better, both in content and critical reception.

From a purely scientific perspective (insofar as is possible with such an emotionally and politically charged issue), the question can be asked: Is evolutionary psychology a legitimate branch of evolutionary biology, or does it approximate more the status of a pseudoscience, as its critics have often contended? To be sure, the overarching idea that behaviors (and therefore cognitive traits) *can* evolve, and sometimes do so as the result of natural selection, is a truism that is hard to challenge. The question, rather, is whether we can have sufficient evidence that natural selection has shaped any *particular* human behavioral pattern. To quote one of the most preeminent critics of evolutionary psychology, geneticist Richard Lewontin, "I must say that the best lesson our readers can learn is to give up the childish notion that everything that is interesting about nature can be understood. . . . It might be interesting to know how cognition (whatever that is) arose and spread and changed, but we cannot know. Tough luck."

Raising the question of whether evolutionary psychology is a pseudoscience in turn naturally leads us to ask what the characteristics of a pseudoscience are, which philosopher Karl Popper famously referred to as the "demarcation problem" between science and nonscience. Unfortunately, the simple solution proposed by Popper, falsificationism, doesn't work for a variety of reasons (see "Thinking about Science" May/June 2004 and September/October 2004). John Casti, in his marvelous *Paradigms Lost*, tackles the same problem and lists a series of characteristics of pseudoscience that may be used as a reference point. These include anachronistic thinking, the glorification of mysteries, the appeal to myths, a cavalier approach to evidence, an appeal to irrefutable hypotheses, the emphasis on probably spurious similarities, explanation by scenario ("story telling"), "literary" rather than empirically based interpretations of facts, extreme resistance to revising one's positions, a tendency to shift the burden of proof, and sympathy for a theory just because it's new or daring.

Based on these criteria, the verdict for evolutionary psychology is a mixed one. Let us take as a paradigmatic example Thornhill and Palmer's idea that rape may be a selected strategy for lower-ranking males to "sneak in" some reproductive fitness, considering that they

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would otherwise not have access to females. Regardless of how distasteful the idea is from a moral perspective, it is of course perfectly sound from a biological one. After all, there is in fact well-documented evidence that "rape" (defined more neutrally as forced access to females) is present in a variety of animal species. The trouble starts when one looks for corroborating evidence. To begin with, there is actually convincing data out there to show that rape certainly doesn't pay as a reproductive strategy in today's society. This is because of abortion and because the risk to the perpetrator is very high. (If caught, he can be locked away for a long time, dramatically reducing his chances of passing genes to the next generation.)

Evolutionary psychologists then resort to a typical strategy to salvage their theory: the modern behavior did not evolve in response to the highly derived current environmental conditions, but rather to the conditions prevalent during the crucial period of human history that occurred in the Pleistocene. The irony here is that this explanation is both reasonable and essentially untestable. It is certainly reasonable to think that natural selection acted for a long time in premodern populations and affected both their appearance and behavior; on the other hand, unfortunately, behaviors have an annoying tendency not to leave a fossil record, and neither do the details of the (largely social and cultural) environment under which natural selection allegedly operated throughout recent human evolution. This makes resorting to Pleistocene scenaria a "just-so story," with very little scientific content or relevance.

The other major route available to evolutionary psychologists is the so-called comparative method, i.e., the possibility to study the evolution of a characteristic by comparing a focal species (humans) to their close relatives (the great apes). But once again, we run into the same problem that, while this approach is indeed widely used in evolutionary biology, it simply doesn't work in the case of our own species. The reason is another unfortunate accident of history: for the comparative method to work properly, one needs many closely related species to compare (to achieve statistical power). Alas, we have only a handful of living relatives (one or two species of chimps, and one or two of gorillas), and they are actually separated from us by several millions of years of independent evolution. As Lewontin remarked, it would be nice to know, but it looks like we simply don't have enough historical traces to make much progress.

While all of this doesn't make evolutionary psychology a typical example of pseudoscience, say like astrology or parapsychology, it certainly moves it away from mainstream evolutionary biology and into a territory uncomfortably close to purely historical research, where reasonable scenaria are the best one can hope for and hard data are difficult to come by or interpret. Did Napoleon lose at Waterloo because he had indigestion and was not feeling too well? It's a reasonable hypothesis, but we aren't likely to find out. □

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In Search of Dracula

I recently had the opportunity to travel through Europe in search of the reality behind some famous ancient legends. I was part of a team of investigators for a TV show called "Legend Detectives," which subsequently aired in December 2005 by Discovery Channel Europe.

I was particularly interested in the legend that was scheduled for May: Count Dracula, the world's most famous vampire. Such is the enduring power of Bram Stoker's classic horror story, first published in 1897 and never out of print, that modern-day Transylvania in Northern Romania has become a tourist Mecca.

Fans of the fictional count flock there by the coachload persuaded that in the land of mist-shrouded mountains, they will find clues to the source of the greatest vampire of them all: the Transylvanian nobleman who left his remote homeland to spread his evil plague.

For the true believer, the boundaries between Stoker's creation and historical fact have become blurred, like all great legends. Many people believe that the immortal count was based on a real person: a medieval Romanian warlord called Vlad Tepes, also know as "Vlad the Impaler" and "Vlad Dracula."

Was this famous national hero the man behind the legend? That was the first question we were going to investigate during our stay in Transylvania.[1]

A bust of Vlad Tepes in Bucharest, Romania.

Son of the Devil

Bram Stoker's Dracula was by no means the first vampire story. It was the culmination of a writing tradition of Gothic horror stories that had begun nearly eighty years earlier with "The Vampyre," by John Polidori. (Was he a relative of mine, I wonder?) Others followed, like "Varney the Vampire" (1847), a serial that ran in magazines called "penny dreadfuls" for more than two years, and J. Sheridan Le Fanu's "Carmilla" (1871), which centered around a lesbian vampire.

But Dracula was a departure. In Stoker's hands, the vampire became all-powerful, the embodiment of evil—and a creature whose immortality was bound up in a rich cocktail of blood, sex, and death.

Ironically, though the novel was first published in English in 1893, Romania's most famous fictional resident, Count Dracula, was almost unknown there until 1992. Only with the fall of communism was Bram Stoker's classic finally translated and published in Romania.

But the question remained, could Vlad Tepes have been the model for Stoker's infamous Count?

What is known of Vlad the Impaler comes from a series of lurid stories dating back to the late fifteenth and early sixteenth centuries. They depict a man surrounded in corpses, a tyrant and madman, who literally drank the blood of his enemies. There are good reasons to think that Stoker was struck by this evil character and borrowed his surname, "Dracula," because he thought it meant "son of the devil," to create his own vampire. In fact, it meant "son of the dragon," and this was because Vlad's father had joined an order of knighthood called the Order of the Dragon. Dragon is written *dracul* in Romanian, and so *Dracula* literally means "son of Dracul."

But to many Romanians, Vlad is a national hero, a saviour. They reject the tales of a psychopathic tyrant as vicious propaganda promoted by Vlad's enemies.

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They honour him as the legendary king who, like Britain's King Arthur, will one day return to save his country.

Part of the reason for this lies in places like Sigihisoara, a town built by Germans, or better, Saxons, who had moved to Transylvania to become merchants. They took hold of the region and didn't even let Romanians enter the town—they had to pay a toll first. Vlad resented this and sided with the Romanians. In his lifetime, he also fought bravely against the Turks, who had conquered parts of Europe already, and this spread panic among the Christian kings. So Vlad was considered a crusader. Europe, then, first knew him as a hero.

However, Vlad lost his battles and was defeated by the Turks, and his legacy was set by the victors. There are still many pamphlets surviving, printed by the Germans soon after his death, in which his exploits are recounted in gory detail and he is portrayed as a devil-like figure.

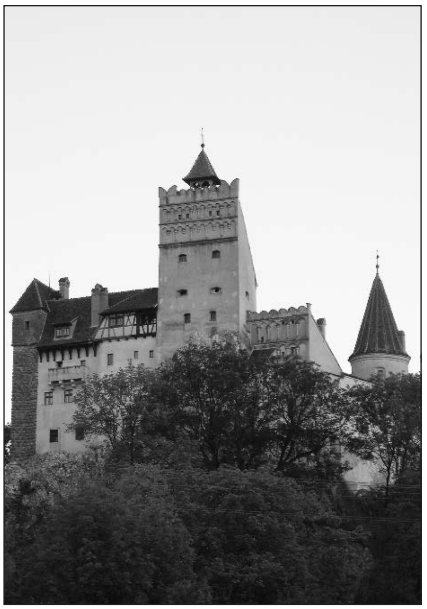
It's ironic that the man whose name helped inspire one of the most famous fictional horror stories of all time, written in the nineteenth century, was also the subject of some of the very first printed horror stories in the fifteenth century. And this also shows the power of propaganda: for a brief moment, he'd been the hero of Europe; then, after his death, his enemies destroyed his reputation.

During the reign of communist dictator Nicholae Ceausescu, Vlad Dracula was again venerated as a hero. They portrayed him as a nationalist icon, a man who united and protected Romanians from their enemies, imperialist Turks and capitalist German merchants.

His brutal methods were either dismissed as enemy propaganda or, when they couldn't be explained away, as a necessary evil. In fact, Ceausescu was so enamoured of Vlad that he is even reported to have once said: "A man like me comes along only every 500 years."

Death of a *Strigoi*

Having ascertained that the real figure of Vlad Tepes was only a loose inspiration for Stoker's fiction, we wondered if local folklore provided the inspiration for his haunting descriptions of vampiric rituals.



A view of Bran Castle, strongly promoted by the tourist board as the real "Castle Dracula"; in reality, Vlad may have stayed here as a guest at some point during his reign, but it was certainly never his castle.

The author explaining to a television crew how Vlad used stakes.

Stories of vampires are, in fact, very old in Romania; however, they prefer to call these creatures *strigoi*. They are seen as ghosts, undead, immaterial things; they are usually a recently buried member of the family, who returns to haunt his relatives and drain their life forces, sometimes in dreams. In order to bring peace to the family and to the undead itself, some "rituals" need to be performed.

These are very secret practices that, I was surprised to learn, still continue today. In January 2004, one such episode became public and created a scandal.

After Petre Toma of the village of Marotinu de Sus died in a field accident in December 2003, his relatives complained that a child's illness was to blame on Toma, since some neighbors claimed they had seen him posthumously walking in his yard. Something had to be done.

Six local men then volunteered to enact the ancient Romanian ritual for dealing with a *strigoi*. Just before midnight, they crept into the cemetery on the edge of the village and gathered around Toma's grave.

It seems that the destruction of a *strigoi* has some parallels with the methods used by Stoker's heroes to destroy Dracula. But rather than drive a stake through the creature's heart, the six men dug Toma up, split his ribcage with a pitchfork, removed his heart, put stakes through the rest of his body, and sprinkled it with garlic. Then they burned the heart, put the embers in water, and shared the grim cocktail with the sick child.

For a little while, it all seemed to have worked well. Eventually, the sick girl got better again, so the ritual must have worked, or so many in the village thought.

Local police appeared to be less understanding. After Toma's daughter complained, they arrested the men and charged them with illegally exhuming the corpse. They were sentenced to six months in jail, but did not serve the time.

What really surprised me, however, was why Toma's daughter was angry at her relatives. It was not because they had desecrated the body of a dead person that deserved more respect, but because she had not been invited to the ritual!

"These are very ancient practices indeed," anthropologist Fifor Mihai, who served as a consultant during the trial, told me. "And they are about communicating with the dead, laying the dead to rest. The media and newspapers have made much of the gory aspects, but these people have been doing this sort of thing for many, many centuries, and in the past, the authorities have turned a blind eye."

These beliefs are very different from those held by people who are Dracula fans; with them, it's all about image, the immortality, and sexiness of vampires. But for the people in Romania, these are deeply held views, as strongly held as religious faiths. Whether that means customs such as digging up a body and removing its heart should somehow be preserved, I'm not so sure.

In the end, our investigation found Romania to be a country of striking contrasts and rich traditions. We've examined the character of Vlad Dracula, but found the evidence that Bram Stoker based his fictional vampire on him wanting. Certainly, he used the name. There are also some uncanny similarities, such as the use of stakes, Vlad's bloodthirstiness, and his victories against the Turks, that suggest Stoker knew something about the real Dracula, but probably little more than what was given in the tour books of his day.

And today, so long as tourists want to go to Romania, and filmmakers want to make Dracula movies, that confusion between the real and fictional Draculas will continue, and for many Romanians, that's not a bad thing.

Acknowledgments

I wish to thank Nigel Miller, Shaun Trevisick, and Alex Obradovich for their invaluable help in the research and documentation for this article, and Tessa Dunlop, Ronald Top, Peter Harvey, and Mick Duffield for being great partners in the investigation.

Note

1. I am of course referring to our TV investigation, for this and other questions have already been dealt with and answered by some good historical work done in the past by researchers such as Radu R. Florescu and Raymond T. McNally. □

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Loon Season in Canada

Paul Hellyer was Canada's Defence Minister from 1963–1967 under Prime Minister Lester Pearson, as well as later serving as Deputy Prime Minister. He's been out of the headlines for quite a few years, but he got back into them with a speech at the 2005 Toronto Exopolitics Symposium: A Symposium on UFO Disclosure and Planetary Directions, held at the University of Toronto's Convocation Hall last September. It was sponsored by Disclosure Canada, a group dedicated to ending alleged government UFO cover-ups.

Hellyer, now eighty-two, explained that he had only a casual interest in UFOs until he viewed the late Peter Jennings's February 2005 TV special "Seeing Is Believing." Apparently unaware that even "serious" news reporters and organizations routinely jettison normal journalistic checks and safeguards when chasing ratings via "paranormal" sensationalism, Hellyer was hooked. Now, he proclaims the alleged worldwide UFO cover-up to be the "greatest and most successful cover up in the history of the world." He said that "UFOs are as real as the airplanes that fly over your head," and he worried that the U.S. government has apparently decided that the aliens are an "enemy," leading to the development of "laser and particle guns to the point that they can be used against the visitors from space" (see www.exopolitics.org/Exo-Comment-38.htm). Hellyer asked, "is it wise to spend so much time and money to build weapon systems to rid the skies of alien visitors. . . . Are they really enemies or merely legitimate explorers from afar. . . . I'm so concerned about what the consequences might be of starting an intergalactic war, that I just think I had to say something."

Hellyer warns, "they [the United States military] could get us into an intergalactic war without us ever having any warning" (seewww.canadafreepress.com/2005/cover112805.htm). The real purpose of President Bush's proposed return to the moon, says Hellyer, is "to build a forward base on the moon, which will put them in a better position to keep track of the goings and comings of the visitors from space, and to shoot at them if they so decide."

Hellyer went on to talk about "the wreckage, by that I mean the material discoveries we have made and how they've been applied to our technology." Here, he was referring to the claims by Philip Corso in *The Day After Roswell* that many of modern technological marvels, such as transistors and microwave ovens, were reverse-engineered from alien technology found in the alleged debris at Roswell, a claim that even many believers in UFOs find preposterous. For some reason, Hellyer seems to have become mesmerized upon hearing the same old shabby claims that made sensationalist headlines in the U.S. a few years back, and have been largely ignored since.

Now, three UFO-related nongovernmental organizations (that's politically correct talk for "private groups") have joined with Hellyer, and petitioned the Canadian Senate to hold hearings on relations with extraterrestrials. Last November, the Canadian Senate informed one of these groups that it would be unable to schedule such hearings that year. Terribly busy, you know. But the UFOlogists are not deterred. "We are going ahead with our request to Prime Minister Paul Martin and the official opposition leaders in the House of Commons now, and we will reapply with the Senate of Canada in early 2006," one unnamed spokesman said. "Our Canadian government needs to openly address these important issues of the possible deployment of weapons in outer space and war plans against ethical Extraterrestrial societies."

How those alleged extraterrestrial societies were determined to be "ethical" was not explained. After all, abducting countless innocent people onto saucers and violating their private parts can hardly be described as "ethical" behavior. Perhaps the aliens had telepathically announced their intention "To Serve Man"? (Fans of *The Twilight Zone* will understand.)

For an example of exopolitics put into actual practice, see the photo of the

Robert Sheaffer's World Wide Web page for UFOs and other skeptical subjects is at www.debunker.com.

Unarius Foundation's ceremony in El Cajon, California, welcoming the Interplanetary Ambassadors.

However, the exopoliticians seem to have been taken completely by surprise by what may be the most important UFO-related disclosure ever: the revelation of the super-secret Project Serpo, The Zeta Reticuli Exchange Program. It has been excitedly discussed on many Internet sites, as well as on the late-night *Coast to Coast AM* radio show with George Noory. According to a highly authoritative source known as Anonymous, reputed to be "a retired senior official within the U.S. Defense Intelligence Agency," in 1965, the U.S. military began a personnel exchange program with the Zeta Reticulans (see www.serpo.org). Ten U.S. servicemen and two servicewomen were said to have boarded a saucer headed for that planet allegedly circling Zeta Reticuli, while one E.T. remained here. In 1978, seven men and one woman allegedly returned to Earth, with two having died on Serpo, and three choosing to remain. All of the survivors have, alas, since died, and hence cannot be interviewed except by Ouija board.

The alleged MJ-12 documents in the late 1980s, telling of crashed saucers and captured aliens, were supported by some alleged "confidential sources" with names like Falcon and Condor, now known collectively as The Aviary. Today, the Serpo yarn is being supported by alleged "confidential sources" with names like Catfish and Sunfish; we suppose these will come to be known as The Aquarium. While some are inclined to dismiss the Serpo claims as an exciting but unsupported fiction, others are not so sure. One point cited in its favor is the "anomalous orbital data" provided about that alleged planet, which "do not appear to accord with Kepler's laws." You might think of that as a minus, but it's actually a plus. The reason is, "if a story like this was invented the first thing a storyteller would get right would be the physics, as the 'correct' numbers are easy to calculate. So the fact that some of the numbers differ widely from those predicted by known laws—a sitting duck for criticism—may be a validating factor, not otherwise." (Unless it's invented by an uneducated or careless storyteller.) Another plus is the alleged confirmation of some of the Serpo data in an interview with EBE-2 (Extraterrestrial Biological Entity 2) on March 5, 1983, at the Los Alamos National Labs. It's hard to get more authoritative than that. Also, there are alleged photos that have been brought back from the alien planet, although they haven't yet been released. About the only argument against the claimed Serpo coverup is the complete lack of any corroborating evidence.

On the downside, UFO sightings appear to be definitely on the wane in Pine Bush, New York, which a few years back was one of the hottest of UFO hot spots in America. According to a December 9 story in the *Middletown Times Herald-Record* (see http://tinyurl.com/c8p6q), there hasn't been a "major" sighting there since 1999. Local UFO buffs are blaming the area's rapid development for squeezing the aliens out. "We've lost all the places to go UFO-watching," said Sue Wiand of the United Friends Observer Society. "We have to go to Shawangunk [in Ulster County]." A few years back, the area around Pine Bush was said to have thirty dairy farms. Now, only one remains. Perhaps the aliens needed to go elsewhere in search of cows to mutilate?

* * *

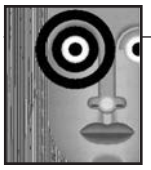
Score one for the little guy: a housing development in St. Fillans, Perthshire, U.K., has been cancelled because it would reportedly harm the fairies who are said to live under a rock there (see www.timesonline.co.uk/article/0,,2-1881612,00.html). The rock is located near the spot where, in the sixth century, the Celtic missionary St. Fillan came and attempted to convert the Picts from pagan beliefs to Christianity. (Apparently, the fairies never got the word that their time was up, and are still hanging around.) Marcus Salter, head of Genesis Properties, said that "We had to redesign the entire thing from scratch," at a cost of £15,000. Never before have so few (and small) accomplished so much.

However, the fairies are not making as much of a buzz as fifteen-year-old Ram Bomjon (a.k.a. "Buddha Boy") in Nepal, who, like Buddha, has been sitting meditating under a sacred pipal tree. However, while Buddha meditated for just forty-nine days to reach Enlightenment, Ram Bomjon has been sitting there for more than six months (see www.telegraph.co.uk/news/main.jhtml?xml=/news/2005/11/21/wbuddha21.xml). Ram is allegedly taking no food or drink, and allegedly not moving at all, not even when he was bitten by a snake. However, skeptics point to photographs taken at different times, clearly showing his limbs in different positions. Some people claim to see "light" emanating from his forehead: "It looks a bit like when you shine a torch [flashlight] through your hand," said one of them. The site in the forest now has something of a carnival atmosphere. Thousands of pilgrims (or the just plain curious) have traveled there. Photos are being sold for five rupees at his makeshift shrine, and vendors are now selling amulets, tea, and tobacco. The ground around his sacred pipal tree is now covered in litter.

Local government officials asked a team of doctors to look into the matter. However, as they were allowed to get no closer to the boy than five meters, they said that they could confirm only that he was alive. "Tell the people not to call me a Buddha," said Ram Bomjon after his encounter with the snake. "I don't have the Buddha's energy. I am at the level of *rinpoche* [lesser divinity]."

* * *

In even more remarkable news, the spoon-bending talents of the Israeli-born Uri Geller are being credited for helping to negotiate an agreement between the Red Cross, the Palestine Red Crescent, and Israel's Magen David Adom. "Uri Geller did not just help break the ice with the skills that have made him famous—a considerable number of bent spoons line the road that led to this agreement," according to Swiss foreign minister Micheline Calmy-Rey (see www.uri-geller.com/geneva.htm). This suggests an interesting approach for future diplomatic negotiations: bring along a magician or a comedian to keep the participants entertained—perhaps they'll be able to compromise better when they're well-amused? If this works, then the next step is to move the U.N. Headquarters to Las Vegas. □



SKEPTICAL INQUIREE
BENJAMIN RADFORD

'Natural' Childbirth

Q: What's behind the current anti-science move toward the "natural" birth process? On many birth-related TV shows, you'll see women hoping and praying they'll be able to give birth "naturally," which seems to mean "without pain relief." Do women have good reason to fear doctors, hospitals, and medication during childbirth?

—L. Capps

A: In a culture that equates "natural" with "good," it's not surprising that a "natural birth" movement would eventually form. The concept of what is "natural" is of course very slippery. As Robert Carroll states in his *Skeptic's Dictionary*, "Something present in or produced by nature is *natural*. For a diabetic to die from lack of insulin would be natural. . . . Just because something is natural does not mean that it is good, safe, or healthy."

Natural childbirth is supposed to benefit both mother and child. One organization, NaturalChildbirth.org, offers various tips and techniques to achieve this "natural birth." "The kind of pregnancy, labor, and birth our children experience has a profound and lifelong effect on their health, including their mental, emotional, and physical health.

Massage therapist and midwife Shelly Girard (1997) explains the "need" for natural birth: "Birth, once the province of midwives for the bulk of the population, became the domain of medical doctors who . . . funneled healthy mothers into hospitals. These low risk mothers, removed from safe, familiar environments . . . began to replace age-old strategies for coping and comfort with fear and uncertainty. With this fear came increased pain and discomfort, leading doctors to begin to administer anesthetics and analgesics." Girard claims that epidurals are not proven to be 100% safe for child or mother (which is certainly true; no drug or medical procedure is absolutely safe). And as for avoiding pain relievers, "In American society, pain is viewed as something to be feared, rather than as a physical indication that something in our bodies or our lifestyle may need to be balanced or changed. The average person is used to taking Tylenol for a headache instead of examining why the headache exists." The logic here escapes me; it seems to be suggesting that childbirthing pain is the result of ignoring the body's natural warning signs about hidden, deeper causes. In the case of childbirth, I'd think there's little mystery about the source of the pain.

Water birthing is one recent "natural birth" option. Expectant mothers can choose to go through labor and delivery immersed in water, believing that pain will be less severe and the experience more gentle for the infant. Though not explicitly a New Age procedure, much of the material promoting the benefits of water birthing rests on dubious theories and evidence: "Perhaps because we begin our lives surrounded in liquid in the womb, this basic familiarity stays with us throughout our lives. Human beings are comprised primarily of water, and many special characteristics we have link us to aquatic mammals. . . ." In the journal *Pediatrics*, researcher Sarah Nguyen (2002) questioned the safety of water birth and described instances of infants inhaling water after underwater deliveries. In a follow-up commentary researchers stated, "At this point, we are convinced there is no evidence to support any benefit of underwater birth for the neonate, and plenty of evidence to suggest harm. With the potential for drowning, hyponatremic seizure activity, infection, and pneumonia, is it ethical to call for randomized, controlled trials?" (Bowden 2003).

The bottom line is that women have managed to safely give birth for millennia. Modern medicine can help ease the pain of childbirth and minimize the risks to both mother and child, but of course it is not necessary for a safe, normal birth. (Neither, it should be noted, are midwives.) All births are natural, yet some births are safer than others, and in case of complications it seems unwise to not take advantage of available modern medicine.

Benjamin Radford is coauthor of Hoaxes, Myths, and Manias: Why We Need Critical Thinking *(2003, Prometheus).*

Sources

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Ask the Skeptic

Heard about some dubious paranormal or fringe-science claim? Ask the skeptic! Submissions can be sent to: **The Skeptical Inquiree, Skeptical Inquirer, P.O. Box 703, Amherst NY 14226 (or bradford@centerforinquiry.net).**

Hoaxers, Hackers, and Policymakers

How Junk Science Persuaded the FBI to Divert Terrorism Funding to Fight Hackers

Hoaxers warned of an imminent and deadly electronic Pearl Harbor. Consequently, the FBI diverted resources and attention away from terrorism and toward fighting hackers. This may have contributed to the September 11, 2001, attacks. Use of critical inquiry and the scientific method could have avoided this misdirection.

CAROLYN MEINEL

Beginning in late 1996, Fred J. Villella, calling himself the former "executive secretary to the national security adviser," squired "Dr. Mudge" and "Se7en," to meetings where they warned federal policymakers of a looming electronic Pearl Harbor (Richtel 1998, Radcliff 1998). Their adventures appeared in many news stories, and for good reason. This was back when the Internet and the Dot Com revolution were big and scary and most people had no idea what it all meant. The policymakers were as clueless as anyone. They were the sorts who had their secretaries print out their e-mails so they could read them—if they even had e-mail. And here were these geniuses telling them what to think: Be afraid. Be very, very afraid. Villella's hackers seemed believable because they exploited the archetype of trickster gods of technology such as the Sumerian Enki and Norse Loki. Movies such as *War Games* and *The Matrix* updated the archetype, with hackers as the modern incarnations. Their trickster god auras must have worked, for these policymakers paid no attention to the murky pasts of these men.

The hackers' messages may have contributed to an entrapment scheme. The missing piece in their electronic Pearl Harbor story was whether hackers were actually collaborating with enemies of the U.S. This soon changed. On May 11, 1998, the FBI arrested Indian immigrant Khalid Ibrahim for "willfully and knowingly" filing a false affidavit on behalf of an al Qaeda operative. At the perp walk, the federal prosecutor told the press that they were conducting "extensive discussions" about a plea bargain, "a disposition that would be termed mutually beneficial" (Moreno 1998). After this publicity, al Qaeda could never trust Ibrahim. Clearly, the FBI was targeting him elsewhere.

A few days later, Ibrahim contacted "Chameleon," a hacker whom the FBI believed had defaced the Army's artificial intelligence Web site with UFO pictures and theme music to *The X-Files*. Ibrahim introduced himself as an Indian terrorist living in New Delhi, India. He offered to pay Chameleon for military secrets. Shortly thereafter, Ibrahim mailed him $1,000. Days later, the FBI raided the home where Chameleon lived with his mother and two sisters (McKay 1998).

Chameleon turned out to be Marc Maiffret, age seventeen. A high school dropout, he spent two years trying to find out whether the Pentagon was conspiring with extraterrestrials. Maiffret was never indicted, which suggests that the FBI failed to find evidence of stolen military secrets. Despite this, many news stories (e.g., McKay 1998, Burrough 2000) and books (Penenberg 2000, Mitnick 2005) hyped the raid to say that hackers were in league with al Qaeda.

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Stir into this media frenzy a feud between Louis Freeh, the head of the FBI, and President Clinton's terrorism and cyberspace czar, Richard A. Clarke (Freeh 2005). Consequently, Freeh habitually froze Clarke out of the loop. All Clarke could have known about Maiffret's supposed al Qaeda adventure was what he saw in the news.

Even other parts of the FBI had little or no knowledge of what was going on. Department of Justice regulations known as "The Wall" kept agents who worked the foreign intelligence beat from sharing information with those handling domestic crimes (Coulter 2004).

All this confusion had a predictable result. In January of 1999, Clarke announced, "There is a problem convincing people that there is a threat. . . . They think I'm talking about a fourteen-year-old hacking into their Web sites. I'm talking about people shutting down a city's electricity, shutting down 911 systems, shutting down telephone networks and transportation systems. You black out a city, people die. Black out lots of cities, lots of people die. It's as bad as being attacked by bombs" (Weiner 1999).

A few days after Clarke's statement, Se7en was exposed as a faker who could barely navigate a keyboard (Silberman 1999). Villella turned out to be just an ex-FEMA bureaucrat who had resigned when caught with his hands in the cookie jar—and on a protesting female security guard (Vranesevich 1999, Kurtz 1984, Earley 1984). These exposés came on top of the fact that news stories had already warned that Dr. Mudge was not the expert he claimed to be (see, for example, Lange 1997 and Wells 1998).

Clarke never connected the dots. He persuaded Clinton to form the National Infrastructure Protection Center (NIPC), and tasked it to battle both terrorists and cyber attackers. This meant that the money to fight both threats came out of the same pot. Consequently, fears of an electronic Pearl Harbor led NIPC to use all funding increases that Congress earmarked against terrorism to hire FBI agents for the hacker beat (Benjamin 2002). For example, in fiscal year 2000, NIPC spent only $4.9 million on counterterrorism. Of this, nearly $3 million went to buy office equipment, and another million went for training (GAO 2001). Therefore, the FBI lacked the resources to follow up on an agent's warning of al Qaeda members at U.S. flight schools (Posner 2003).

In February 2000, Clarke arranged for Dr. Mudge to meet with and advise President Clinton. In early 2001, Clarke appointed Dr. Mudge to advise the National Security Council (NSC). Not until after September 11, 2001, did Dr. Mudge lose his influence.

Ignoring the Scientific Method

None of this would have happened had federal policymakers heeded the scientific method and thought critically about the issues.

1. Create a hypothesis that is falsifiable, meaning that it is possible to run experiments that, if the data were to come out a certain way, would disprove it.
2. Conduct experiments.
3. Publish the hypothesis and results of experiments, and in so doing, credit prior research.

4. Compare with experimental results obtained by independent researchers.

Let's examine how this process could be applied to the hacker threat.

Se7en's hypothesis. His gang, the Dis.org Crew, claimed to know how to build a cheap, lightweight HPM (high power microwave) gun that could destroy electronic devices at great ranges. This was a big deal because these are not available on the open market. Anyone who wishes to use an HPM weapon must first design and build one. As will become apparent below, there is a good reason for this.

Their experiments. They promised to demonstrate their HPM gun at the 1997 Defcon hackers' convention. However, they never demonstrated it there or anywhere else. Their Web site, www.dis.org, simply claims that they successfully completed this research project.

Their publication. In the June 3, 1996, issue of *Forbes* they made claims of a HERF (high energy radio frequency) gun that could generate a pulse with two million watts of power for a thousandth of a second (2000 joules). "Have you ever heard of a device that directs magnetic signals at hard disks and can scramble the data? . . . That will cook your internal organs, man . . . $300: a rucksack full of car batteries, a microcapacitor and a directional antenna and I could point it at Oracle over there. . . . We could cook their whole office. . . . If you had a Cessna . . . you could fly over Silicon Valley and—POW!—there goes Sun Microsystems—POW!—there goes Intel! . . . You could be a half-mile away and take out a computer in Oracle" (Poole 1996). They failed to credit any other research, for example, HPM programs funded by the U.S. Department of Defense.

Independent experimental results. On a February 1999 *20/20* newsmagazine program, inventor David Schriner demonstrated a device with approximately the same power as the alleged *Forbes* weapon against an idling Corvette. At a range of some ten feet, with the hood up and the weapon pointed directly into the engine compartment, the HERF gun made the idling corvette . . . run roughly (Smith 1999, Schwartau 2005).

At the September 1999 Infowarcon conference, Schriner demonstrated a circa 1880 Hertzian generator equipped with a four-foot parabolic antenna, but reportedly was only able to crash (but not burn out) a computer, and only when within twenty feet (Poulsen 1999, Schwartau 2005).

Why, one might ask, did Schreiner risk this exposure? "Tuning frequency is crucial," says Jeff Schleher, an HPM researcher with defense contractor SAIC. "Each individual vehicle," he says, can have a different vulnerable frequency. An HPM weapon that can stop one vehicle cold might only make another run roughly.

Under a U.S. Army contract, Fiori Industries, Inc. is currently assessing "feasibility of using HPM to immobilize engines" at its Albuquerque, New Mexico, test facility. Although the project is classified, its existence suggests a practical application still is in the research phase.

Diehl GmbH und Co. of Roethanbach, Germany, is said to be selling an HPM weapon, but only to approved governmental entities. No mention of this product appears on its Web site. However, two of its scientists presented a paper on their HPM power source research at the Euro Electromagnetics Conference, July 12–16, 2004. A Google search fails to turn up other vendors of HPM weapons.

Countless news stories and at least two books on computer crime have claimed that hacker HPM weapons are serious threats.

The Air Force Research Laboratory in Albuquerque has conducted many lethality experiments. Its smallest HPM test device delivers ten million joules per attack, five hundred times as much as the supposed weapon of the Dis.org Crew. The capacitor bank that delivers the pulsed power for this device fills a large room. Other experiments at this facility have used pulses of hundreds of millions of joules. These require detonation of large quantities of explosives and operate at ranges far shorter than half a mile (AF Research Lab Fact Sheet 2002).

Despite all this evidence—and lack of evidence—countless news stories and at least two books on computer crime have claimed that hacker HPM weapons are serious threats (Vacca 2002, Adams 1998).

Dr. Mudge

Dr. Mudge's hypothesis. "Dr. Mudge" has repeatedly claimed he can single-handedly crash the Internet—and keep it crashed for days (Kohl 2005). Furthermore, he and others have said that an Internet crash would cause vast disruptions in the nation's infrastructure.

On May 19, 1998, the Senate Governmental Affairs Committee held a hearing on "Weak Computer Security in Government: Is the Public at Risk?" Peter Neumann of SRI International testified "that the underlying information infrastructure of the U.S. such as power generation, transmission and distribution; air traffic control; and telecommunication" were at risk. "It may take a Chernobyl-scale event to raise awareness levels. . . ."

Dr. Mudge's testimony was equally startling. Chairman Fred Thompson asked, "I'm informed that you think that within thirty minutes . . . you could make the Internet unusable for the entire nation. Is that correct?"

"That's correct," said Dr. Mudge, "Actually . . . with just a few [keystrokes]." He added that, "it would definitely take a few days for people to figure out what was going on" (Trigaux 1998, Wells 1998)

Experiments: Dr. Mudge has never publicly demonstrated anything relevant to his claim.

Publications: None. When asked in a phone interview where he had published his research, he said only that it had been reviewed "for years by the National Security Council" (NSC). When asked who on the NSC evaluated it, he replied "I am not at liberty to divulge this information" and hung up. The NSC is not a research organization.

Despite predictions, this electronic Pearl Harbor was a flop. Wherever the Internet crashed, the phones kept on working, the lights stayed on, the trains ran on time—and nobody died.

Dr. Mudge, aka Peiter Zatko.

Independent experimental results: In July 2001, the Code Red v2 worm infected almost half a million Webservers on the Internet. Soon the traffic of all these worms seeking new victims was flooding the Internet. Amid this, a train crash in a Baltimore tunnel severed a major Internet backbone. Consequently, portions of the Internet crashed (FEMA Technical Report 2001, Moore 2002).

Despite predictions, this electronic Pearl Harbor was a flop. Wherever the Internet crashed, the phones kept on working, the lights stayed on, the trains ran on time—and nobody died. These systems were inaccessible from the Internet, a detail that had escaped the alarmists.

Critical Analysis About E-Terrorism

Here is how legitimate researchers have investigated the electronic Pearl Harbor hypothesis.

Winn Schwartau first publicly introduced the "electronic Pearl Harbor" hypothesis at a 1991 Congressional hearing (Schwartau 1991). He also has published his theories in many articles and books, and has always made it clear that an electronic Pearl Harbor would be difficult to achieve. He also has sponsored public demonstrations of HPM weapons, which he calls HERF (high-energy radio frequency) guns.

Admittedly, advertisements for these demonstrations lacked sobriety. Said one, "This year we have more home-brew terrorist capable HERF devices for hands-on play and education!" (O'Hearn 2003). However, Schwartau must sound sympathetic to the claims of hackers in order to get them to come out of the woodwork.

These demonstrations have shown that these weapons fall drastically short of the performance claimed in that 1996 *Forbes* story. Some have been outright irrelevant. At Schwartau's Infowarcon 2003, a seventeen-year-old Russian student used an EMP device to launch full soda cans. At one event, Schreiner showed off a "HERF pen" that he said could "blow up the chips" in ATM machines (Schwartau 2005). How this could be as effective for extracting money as a sledgehammer is unclear.

By contrast, several textbooks on HPM weapons are available that rely upon the scientific method to distinguish fact from fantasy. Examples include *Electronic Warfare in the Information Age* by D. Curtis Schleher and *High-Power Microwave Systems and Effects* by Clayborne D. Taylor and D.V. Giri.

Regarding research on ways to crash the Internet, "How to 0wn [*sic*] the Internet in your spare time" (Staniford 2002) is an example of using the scientific method.

> We begin with a mathematical model derived from empirical data of the spread of Code Red I in July, 2001. We discuss techniques subsequently employed for achieving greater virulence by Code Red II and Nimda. In this context, we develop and evaluate several new, highly virulent possible techniques: hit-list scanning (which creates a *Warhol* worm), permutation scanning (which enables self-coordinating scanning), and use of Internet sized hit-lists (which creates a *flash* worm).
>
> We then turn to the threat of *surreptitious* worms that spread more slowly but in a much harder to detect "contagion" fashion. We demonstrate that such a worm today could arguably subvert upwards of 10,000,000 Internet hosts.

According to the Citeseer Web site, which tracks citations of scientific publications (http://citeseer.ist.psu.edu/staniford02how.html), forty-six other scientific papers have cited this paper. According to one of the co-authors, Nicholas Weaver, factors that led to the value of their research came straight out of the scientific method: ". . . testability through simulation and enough details for others to evaluate. Also, there is a fine line: you have to give enough details for evaluation, but you can't give *too* much detail because you don't want to give

attackers too many ideas. And also . . . we don't have a perfect understanding: E.g., on our worst-case estimate, we were careful on both the details we elided and noting where we really didn't have an understanding" (Weaver 2005).

Remarkably enough, at age eighteen, Marc "Chameleon" Maiffret, the kid the FBI failed to entrap as an al Qaeda collaborator, cofounded eEye Digital Security. In contrast with Dr. Mudge, Maiffret and his research team followed the scientific method, and to a fault. Because his credibility was under attack, Maiffret often published explicit details of the computer security flaws they uncovered. This made it easy for others to replicate his findings, but also inadvertently assisted criminals. One of his analyses provided a sequence of keystrokes that was incorporated in the Code Red v2 worm. This inspired FBI agents to pay him another unpleasant visit. However, they found no evidence against him.

On August 29, 2001, Maiffret testified before the House Subcommittee on Government Management, Information, and Technology about threats to the Internet. Unlike Dr. Mudge in his 1998 Senate testimony, Maiffret provided a detailed and sober analysis. He concluded, "I referenced the Code Red worm heavily . . . because I feel by analyzing it closely we can learn a lot about what went wrong and what we can do in the future . . . the biggest problem facing security today is that there are too many people talking about what we could do or what the threat is, and not enough people doing real work that will result in the mitigating or abolishment of those threats" (Maiffret 2001).

Maiffret hit the nail on the head. Too many self-described computer security researchers have made terrifying claims, but failed to substantiate them. Fortunately, a few researchers have published their hypotheses and subjected them to experiments and peer review. We simply need to act on those findings that have scientific validity, and ignore the flimflam and hoaxes.

The next time some hacker claims to have god-like powers over technology, perhaps we can persuade our leaders that neither Enke nor Loki have incarnated themselves as this latest fear monger.

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Critical Thinking

What Is It Good for? (In Fact, What Is It?)

Nearly everyone is in favor of critical thinking. This is evidence that the term is in danger of becoming meaningless. Skeptics should spearhead the effort to clarify what critical thinking is—and what it is not. The stakes are high.

HOWARD GABENNESCH

> Respect for the truth comes close to being the basis for all morality.
>
> —Frank Herbert

> A lady said, "What's your solution?" I said, "There are no solutions. There are only trade-offs." She said, "The people demand solutions!"
>
> —Thomas Sowell

When *republic* is used in such expressions as "The People's Republic of ____" or *lies* refers reflexively to an adversary's interpretation of the facts, damage is done to the concepts—liberal government, truthfulness—that stand behind the words. Critical thinking is another concept whose value is being diminished by terminological disarray.

I suggest that one of our major responsibilities as skeptics is to maintain a continuous exploration of fundamental questions involving critical thinking, including:

(1) What are the essential components of critical thinking?
(2) Are those who claim to be promoting critical thinking doing justice to the concept or corrupting it?
(3) What is the value of critical thinking, and how do the benefits justify the undeniable costs of studying, teaching, and practicing it?

But haven't we been pursuing such questions for quite a while? Amazon.com lists more than 2,000 titles on critical thinking. Haven't we largely ironed out the conceptual fundamentals by now?

Apparently not. Here are some indicators from my discipline of sociology that illustrate some of the work that needs to be done. I draw these examples from four mainstream, college-level introductory sociology textbooks, three of which are best-sellers in a crowded market. As is true in virtually all such texts, the preface and promotional material of each book explicitly assure instructors and students that the book attaches much importance to critical thinking.

Is This Critical Thinking?

A text that's currently in its fifth edition discusses the influence of social forces on definitions of aging by stating (Kendall 2006, 101):

> Negative images also contribute to the view that women are "old" ten or fifteen years sooner than men. . . . The multi-billion dollar cosmetics industry helps perpetuate the myth that age reduces the "sexual value" of women but increases it for men. Men's sexual value is defined more in terms of personality, intelligence, and earning power than by physical appearance. For women, however, sexual attractiveness is based on youthful appearance. By idealizing this "youthful" image of women and playing up the fear of growing older, sponsors sell thousands of products that claim to prevent the "ravages" of aging.

Certainly, there is some truth to this, but is it fair to say that it is a *myth* that age reduces the sexual value of women more quickly than for men? After all, a society that generally considers older women as physically attractive as younger ones has yet to be discovered, whereas the attractive older man is an anthropological commonplace. The author is ignoring the more fundamental possibility that sexual value has something to do with *reproductive* value, making nature partly (largely?) responsible for the double standard of aging. A more educational analysis might suggest that a huge cosmetics industry is both cause and effect of the link between youth and female beauty.

However, the idea that sex differences in reproductive biology could underlie sex differences at the psychological and sociological levels is ideologically off-limits to most sociologists. Of course, textbooks are entitled to emphasize a certain theoretical point of view. But are we still practicing and teaching critical thinking if we actually direct students away from likely pieces of the truth?

A book that for many years has been one of the leading introductory sociology texts cites the Israeli kibbutz (a utopian agricultural settlement) as evidence of the cultural construction of gender (Macionis 2006, 253):

> In kibbutzim, both sexes share most everyday jobs. Both men and women take care of children, cook and clean, repair buildings, and make day-to-day decisions concerning life in the kibbutz. Girls and boys are raised in the same way and, from the first

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> weeks of life, children live together in dormitories. Women and men in the kibbutzim have achieved remarkable (though not complete) social equality, evidence of the wide range that cultures have in defining what is feminine and what is masculine.

The kibbutz as evidence of the wide latitude cultures have in defining gender? This interpretation would astonish Spiro (1996) and Tiger and Shepher (1975), anthropologists known for their research on gender in the kibbutz. These authors (and others) make it clear that the attempt to eradicate gender distinctions is instructive precisely because it did *not* succeed. Despite intense socialization pressures to the contrary, many familiar differences between the sexes appeared in the kibbutz: boys and girls preferred different toys, activities, subjects in school, and clothing styles; men gravitated toward outdoor work and leadership positions; mothers wanted to spend more time with their children than the design of the kibbutz originally allowed. To his own surprise, Spiro (1996, *x*) concluded that:

> . . . the findings of this study (like those of Tiger and Shepher) constitute a direct, if implicit, challenge to some central assumptions of gender and women's studies, including [that] gender and gender differences are culturally constructed. . . .

Some critics have claimed that the kibbutz was not a true test of the cultural malleability of gender, but it is clearly misleading to offer the kibbutz as *evidence* of such plasticity. Perhaps this is simply an innocent error by the author. But complying as it does with the powerful "blank-slate" orthodoxy among sociologists, this tendentious presentation has survived the scrutiny of scores of the book's reviewers and adopters.

In a discussion of "heredity or environment," intended to emphasize the role of environment, another highly successful text devotes several paragraphs to a description of two identical twins, Oskar and Jack, who were separated early in life. When reunited in adulthood, they turned out to be quite different in most respects (Henslin 2006, 57). The author grants that the men showed some uncanny similarities (e.g., "Both flushed the toilet both before and after using it"), and he notes that heredity establishes "the *limits* of certain physical and mental abilities." But the focus is on the ability of different environments to produce different people, even when their genes are the same.

If it is fine to teach that social experience may override the influence of biology on behavior. But what about the rest of the story that has emerged from the study of twins and adoptees? The case of Oskar and Jack comes from the Minnesota Center for Twin and Adoption Research, headed by Thomas Bouchard. One waits in vain for the text to present—or somehow to acknowledge the existence of—the *main* outcomes of that research. For example:

(1) Adult identical twins reared in the same family are no more similar than identical twins reared apart.
(2) Identical twins raised apart are more similar, in almost every physical and psychological trait, than fraternal twins raised together.
(3) Even after growing up in the same home, unrelated adults are no more alike in intelligence than complete strangers.
(4) Twin studies of various kinds consistently find that between 40 and 80 percent of the variance in intelligence is due to genetic factors.

As Bouchard (1997, 54) notes, "Such findings fly in the face of the emphasis on the role of the environment in child development that has pervaded American psychology until very recently." Results like these have drawn widespread attention to the twin studies at the University of Minnesota and elsewhere. They are a foundation of the field of behavioral genetics. But they are nowhere to be found in this text's discussion of "heredity or environment."

A text that promises to emphasize *how* to think more than *what* to think fires a broadside at the field of evolutionary psychology by listing its fallacious claims (Brym and Lie 2004, 65–67). These alleged errors include "men are promiscuous and women are not" and "what exists is necessary." In rebuttal, the authors assert, "it would be wrong to conclude that variations among people are due just to their genes," "genes *never* develop without environmental influence," and "the pattern of your life is not entirely hardwired by your genes."

But this is waging war on straw men—tired ones. No contemporary evolutionary psychologists support the crude biological determinism imputed to them here. And no young reader of this text would imagine that the bourgeoning study of evolution, genes, and human behavior has attracted many sophisticated scholars from a variety of disciplines.

This is teaching students *how* to think?

Toward a Sharper Definition

When academic textbooks come to resemble hymnals that celebrate a religious denomination's theology, and when this goes by the name of critical thinking, it is time for some definition adjustments.

No one should pontificate a definition of critical thinking, nor should we expect to achieve unanimity. But I offer the following definition for consideration: *Critical thinking is the use of rational skills, worldviews, and values to get as close as possible to the truth.* Here, critical thinking is conceived as consisting of three essential dimensions: skills, worldview, and values.

The Skills Dimension

By critical thinking skills, I mean the various higher-order cognitive operations involved in processing information, rather than simply absorbing it: analyzing, synthesizing, interpreting, explaining, evaluating, generalizing, abstracting, illustrating, applying, comparing, recognizing logical fallacies.

It is primarily the skills dimension that most people appear to have in mind when speaking of critical thinking. This narrow focus has permitted critical thinking to become a hot topic in American education—reasoning skills can be taught in virtually any academic course at any level, and, importantly, they can be taught without venturing into sensitive areas. We can, if we wish, restrict our critical thinking skills to the safe and sanitary.

Proficiency in the skills dimension is necessary but not sufficient for anyone who claims to be a critical thinker. One could excel at reasoning while failing at other dimensions of critical thinking.

Indeed, this is not uncommon. A more fully developed conception of critical thinking that includes the worldview and values dimensions is both more difficult to teach and more dangerous to display than a narrow conception that focuses on logical reasoning.

The Worldview Dimension

In his classic *Invitation to Sociology*, Peter Berger (1963, 23) states, "It can be said that the first wisdom of sociology is this—things are not what they seem." I would alter the wording slightly—things are not *always entirely* what they seem—and propose it as the first wisdom of critical thinking. The recognition that the world is often not what it seems is perhaps the key feature of the critical thinker's worldview.

From this perspective, the world is a deceptive place—not just occasionally but inherently. Such a worldview goes beyond the usual suspects (e.g., deceptive TV ads and phony crop circles) to incorporate a broader recognition of the deceptive nature of the world, including such insights as:

- Like fish who are unconscious of the water that envelops them, we are often unaware of the constraints imposed on our thinking by the taken-for-granted social forces surrounding us—not to mention the gene-based forces within us.
- Some aspects of the social world appear natural, but are actually human contrivances. And vice versa.
- The social roles we play can shape not just our behavior but our identity—often we unwittingly become what we play at.
- We are often ignorant of our ignorance. And the more incompetent we are, the more likely we are to overestimate our competence.
- It is normal for seemingly contradictory things to occur together.
- All good things have costs. Many bad things have benefits.
- Issues frequently appear black-and-white, when in fact they usually consist of grays.
- We typically mistake pieces of the truth for the whole truth.
- Partial truths can be just as misleading as outright lies.
- We are more likely to be misled by people who sincerely believe what they are saying than by liars.
- Self-deception can be an even bigger problem than deception by others.

In short, since it is so easy to misperceive reality, a critical thinker is disinclined to take things at face value, suspicious of certainties, not easily swayed by conventional (or unconventional) wisdom, and distrustful of the facades and ideologies that serve as the ubiquitous cosmetics of social life.

In other words, critical thinkers are necessarily skeptics. Skepticism can be summarized as concisely as this (*Skeptic* 2005):

(1) Skeptics do not believe easily. They have outgrown childlike credulity (Dawkins 1995) to a greater extent than most adults ever do.
(2) When skeptics take a position, they do so provisionally. They understand that their knowledge on any subject is fallible, incomplete, and subject to change.
(3) Skeptics defer to no sacred cows. They regard orthodoxies as the mortal enemy of critical thought—*all* orthodoxies, including those that lie close to home.

Convincing people that their worldview underestimates the extent to which things are not what they seem requires a wide range of no-holds-barred examples such as these:

- From the beginning, AIDS has been exaggerated as a significant threat to heterosexuals in the U.S.
- It is far from clear that Abraham Lincoln cared deeply about social equality between whites and blacks.
- Martin Luther King Jr. cheated on his doctoral dissertation and on his wife.
- We fall out of love with our children less often than with our lovers/spouses because our children carry our genes.
- Despite what is widely assumed by professionals in the counseling and education industries, self-esteem has not been shown to be causally related to academic and behavioral outcomes.
- Whatever intelligence tests measure is related to many academic, occupational, economic, and behavioral outcomes—and it is substantially heritable.
- It is far from clear that many returning Vietnam vets were spat upon.
- It is far from clear that child sexual abuse produces devastating and long-lasting effects in nearly all of its victims.
- Studies have found that many gender stereotypes contain an element of truth.
- There may be credible UFO sightings that science is currently unable to explain.
- Chance alone caused the forty-sixth word from the beginning of Psalm 46 to be "shake" and the forty-sixth word from the end to be "spear" in the King James Bible, which was published in the year Shakespeare turned 46 (Myers 2002).

Developing a skeptic's worldview means that one's foundational assumptions will be disturbed, not to mention those of others. Toes will be stepped on, tempers could flare, mortified members of the audience may stagger from the room. Hence, there is still more to full-fledged critical thinking.

The Values Dimension

Imagine a juror in the trial of a defendant accused of murdering a child. The juror listens to the prosecution's case, which is accompanied by grisly photos, testimony from a detective who becomes visibly shaken when describing the crime scene, and audible sobs from the victim's family. Then, roiled by emotions ranging from grief to outrage, she is called upon to do something remarkable: listen to the defense just as receptively as she did to the prosecution.

To do her job well, she will need more than good reasoning skills and the sturdy skepticism that is appropriate when listening to dueling lawyers. She will also need a certain set of values that will motivate her to do the difficult things necessary to reach an honest verdict. It takes a principled person to force aside her personal suspicions and preferences long enough to determine

whether the prosecution has proved its case beyond a reasonable doubt.

Like the honest juror, the critical thinker is ethically committed to the concept of due process—*intellectual* due process—as the best way to increase the likelihood of finding the truth. This code of intellectual conduct demands giving ideas their day in court before rendering an informed and reasoned verdict. It requires such traits as these:

- Being unwilling to subordinate one's thinking to orthodoxies that demand to be swallowed whole—at the risk of being charged with heresy
- Refusing to dismiss possible merits in ideas that otherwise may be deeply repugnant—at the risk of appearing immoral
- Being capable of saying, "I don't know"—at the risk of appearing unintelligent
- Being willing to judge the truth value of ideas sponsored by demographic and cultural groups to which one does not belong—at the risk of being accused of prejudice
- Being willing to change one's mind—at the risk of appearing capricious
- Being open to the arguments of adversaries—at the risk of appearing disloyal
- Having an acute awareness of the limits and fallibility of one's knowledge—at the risk of seeming to suffer from that dreaded malady, low self-esteem

In short, this aspect of critical thinking can be the most difficult of all. Subjecting ideas to intellectual due process can require more integrity, humility, tolerance of uncertainty, and courage than most of us find easy to summon. No wonder we will join a wild-eyed, slobbering lynch mob from time to time.

Benefits

Is critical thinking worth the costs? Consider for a moment how costly *un*critical thinking can be.

Stephen Jay Gould (1997, *x*, *xii*) calls attention to two precious human potentials that together constitute "the most powerful joint instrument for good that our planet has ever known":

> Only two possible escapes can save us from the organized mayhem of our dark potentialities—the side of human nature that has given us crusades, witch hunts, enslavements, and holocausts. Moral decency provides one necessary ingredient, but not nearly enough. The second foundation must come from the rational side of our mentality. For, unless we rigorously use human reason . . . we will lose out to the frightening forces of irrationality, romanticism, uncompromising "true" belief, and the apparent resulting inevitability of mob action . . . Skepticism is the agent of reason against organized irrationalism—and is therefore one of the keys to human social and civic decency.

According to this striking claim, critical thinking is one of the most important resources a society could develop. This is because bad things do not emanate only from bad people. Bad things can also occur because of the mistaken thinking of decent people. Even when a bad idea originates with a psychopath, the real danger occurs when it is accepted by the gullible and condoned by the sincere who have little more than a child's understanding of what intellectual due process entails.

It is likely that an important link exists between critical thinking, broadly defined, and democracy itself. The American jurist Learned Hand (1952, 190) described this connection as follows:

> Liberty lies in the hearts of men and women; when it dies there, no constitution, no law, no court can save it . . . . The spirit of liberty is the spirit which is not too sure that it is right; the spirit of liberty is the spirit which seeks to understand the minds of other men and women; the spirit of liberty is the spirit which weighs their interest alongside its own without bias.

So by cultivating genuine critical thinking, we strengthen the crucial underpinnings of democracy (Kuhn 2003). People who are careful about the truth are less likely to be fooled by the ideologies that justify illiberal practices or promise simple solutions. Moreover, such people are more likely to recognize the value of intellectual and ideological diversity—they understand that the truth comes in pieces and is unlikely to be found all in one place. They are the best counterweight to true believers of all stripes. Ultimately, intellectual due process is no less integral to democracy than is due process of law.

Within a democracy, the social world remains a deceptive place—for the sophisticated and the innocent alike. The tendency of leaders and large numbers of citizens to underestimate this fact is a source of enormous human misery.

Here is an example. In his book a few years ago and in the 2003 Oscar-winning documentary by Errol Morris, *The Fog of War*, former defense secretary Robert S. McNamara (1995) identifies the mistakes made by him and others that led to calamity in Vietnam. His account describes confident, mostly decent men who did what they thought was best, but who fell prey to a chilling list of errors that could serve as chapters in a textbook on critical thinking: dualistic thinking, wishful thinking, absence of intellectual humility, underestimating complexity, groupthink, childlike credulity, rigid adherence to orthodoxy. These were intelligent, educated men whose logical reasoning skills were far above average. Yet McNamara finds it "incredible" that "[w]e failed to analyze our assumptions critically."

Perhaps the architects of the Vietnam war went wrong because they indulged in what Thomas Sowell (2002) calls "shibboleths" as substitutes for critical thinking. A shibboleth is a belief that serves the purpose of identifying the believer as one of the good guys, prominently planted on the side of the angels. Shibboleths "transform questions about facts, causation, and evidence into questions about personal identity and moral worth":

> Mere facts cannot compete with shibboleths when it comes to making people feel good. Moreover, shibboleths keep off the agenda the painful question of how dangerous it is to have policies which impact millions of human beings without a thorough knowledge of the hard facts needed to understand just what that impact has actually been. . . . Shibboleths are dangerous, not only because they mobilize political support for policies that most of the supporters have not thought through, but also because these badges of identity make it harder to reverse those policies when they turn out to be disastrous.

Like many other forms of uncritical thinking, shibboleths derive their power from the fact that humans are designed to be

social animals more than truth-seeking ones. For all the societal benefits of critical thinking, at the individual level, uncritical thinking offers social and psychological rewards of its own.

Promoting Critical Thinking

If the societal benefits of multidimensional critical thinking are great, so is the task of raising the level of such thinking in our society. On whose shoulders does this responsibility fall?

Thomas Gilovich (1991, 193–194) has argued that social scientists, by virtue of their "way of looking at the world, the habits of mind that they promote," are in the best position to educate others about the importance of "question[ing] our assumptions and challeng[ing] what we think we know."

This is not encouraging, since social scientists appear to be as prone to orthodoxies, wishful thinking, ad hominems, and shibboleths as anyone else (Horowitz 1996; Berger 2002; Goldberg 2003). As our glimpse inside the sociology texts suggested, there are problems with trying to teach genuine critical thinking in disciplines that are several parts social for each part science.

Are the hard sciences doing much better? In the first place, science education is not producing high levels of scientific literacy in the population (National Science Foundation 2004). Besides, there appears to be only a weak relationship between science knowledge and disbelief in various forms of nonsense (Walker and Hoekstra 2002; Johnson and Pigliucci 2004).

As many have noted, we teach science as a collection of facts and theories about a certain category of phenomena, rather than as a set of principles for understanding the world. A course in "Science, Pseudoscience, and Anti-science" would stimulate broader critical thought than the typical Chemistry 101 class. But the problem is deeper than this. Full-blown critical thinking is not coterminous with good scientific thinking. Critical thought is the principles of scientific thought projected to the far reaches of everyday life, with all the attendant demands and complications. This expansive generalization of the scientific method is hardly spontaneous or self-evident for most people. Just as learning the truth about Santa does not shatter the typical child's credulous worldview, learning the principles of science can easily fail to fully penetrate the larger vision of science students—and indeed, of scientists. By themselves, science classrooms are poor competition for the powerful obstacles to highly developed critical thinking that reside in human social life and in the wiring of the human brain.

Multidimensional critical thinking is not simply a byproduct of something else. It must be taught. Well, then, what about the "critical-thinking" trend that has permeated American education across the curriculum at all levels? Are these efforts succeeding in materially strengthening the quality of critical thinking in society at large? Again, the various indicators of uncritical thought in our society suggest not. It is doubtful that what students learn from those classrooms and texts does much to alter their worldviews and values regarding the truth. A primary cause of this shortfall is the antiseptic nature of the "critical thinking" typically taught to students. Either most teachers and authors do not possess a highly multidimensional conception of critical thinking themselves, or they are reluctant (perhaps with good reason) to approach the perilous territory—way past logical fallacies and weeping Madonna statues—to which full-fledged critical thinking inevitably leads. The result is the commonplace teaching of quasi-critical thinking.

It is naïve to expect social-science education, natural-science education, or education in general—at least in their present forms—to elevate critical thinking to something more than a pedagogical fashion that everyone applauds but few conceptualize very deeply. This leaves the skeptical community. We identify ourselves as champions of science and reason. But this is a broad mandate. We should avoid concentrating our skepticism too narrowly on the realms of superstition, pseudoscience, and the supernatural—for the ultimate challenge to a critical thinker is posed not by weird things but by insidiously mundane ones. If we hope to realize the promise of critical thought, it is important that skeptics affirm a multidimensional definition of critical thinking—reasoning skills, skeptical worldview, values of a principled juror due process—that exempts no aspect of social life.

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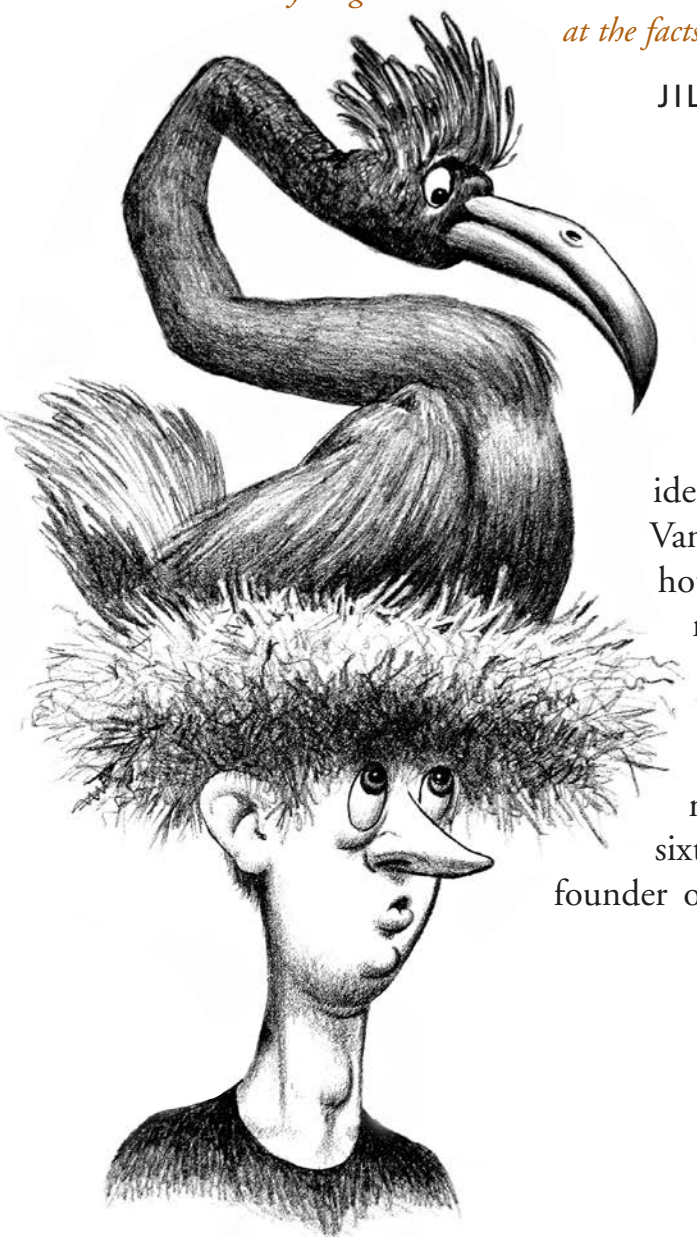
The Big Bird, the Big Lie, God, and Science

A young man claims to have amazing distant-healing powers, but a skeptical look at the facts raises serious questions.

JILL NEIMARK



There was a time in the spring of 2004 when I was willing to entertain the idea that a nineteen-year-old kid in Vancouver, Canada, could, with a few hours' effort and from thousands of miles away, subvert the laws of biology and physics, and heal me of Lyme disease. I had some outsize claims to hang my hopes upon: former astronaut Edgar Mitchell, the sixth man to walk on the moon, and founder of the Institute of Noetic Sciences,

claimed that Adam had helped heal him of kidney cancer at a distance; aging rock icon Ronnie Hawkins was also, according to a 2003 feature article in *Rolling Stone* magazine, healed at a distance by Adam of pancreatic cancer. Gi-gong master Effie Chow, who was formerly a member of the White House's commission on complementary and alternative medicine, said this kid was the real deal, and had written a foreword to one of Adam's two books—available on his Web site, www.dreamhealer.com. In May 2004, medical doctors invited Adam to demonstrate his healing methods at the annual convention of the Association of Complementary Physicians of British Columbia. According to a July 10 article in the *Toronto Star* by writer John Goddard, Adam claimed that a bird he encountered "telepathically downloaded all the information of the universe into his brain. Ever since," the article reports, "he has been able to see baseball-size orbs of energy and light moving through the air."

Then there was the lure of his youth and anonymity—a kind of cloaked Leonardo diCaprio of healing, a teen whose photo magazines and newspapers respectfully refrained from publishing, a boy whose real name was never revealed. It seemed either bold or deeply cynical that he'd donned as his pseudonym the name of God's first human creation.

When I spoke with his mother, Liz, she said that when Adam works on someone "it looks like he's holding X-rays up to the light. His hands are outstretched, and he starts with his fingers manipulating stuff, and sometimes he uses his hands to move from screen to screen, as if he's pulling something from one side to the center. I suppose that's when he's getting a different holographic level." Adam himself said to me that when he goes into a trance, "I see three-dimensional images of the person in front of me, and I can go into different layers physically and energetically. Where it lights up, is where the problem is."

I was curious to have Adam work on me, and his parents told me he was willing (most communication to and from Adam comes through his parents, Liz and Frank, often by e-mail.) I let his family know I had Lyme disease, and told them that I was also interested in attending an upcoming workshop in Toronto—where, supposedly, Adam worked on a group of hundreds at once. His mother asked for a photo, which I sent by e-mail. Adam told me, "I can get information from a name, but as far as a strong connection I need a picture. From a picture I get whatever I want. I look at the picture once and I go into the other room and go into a trance when I do a healing. Everything around me goes dark and I see these images in front of me."

After a few distant healing sessions, where I dutifully lay on my bed in the dark and relaxed for about twenty minutes, Adam had little to report to me except that my nervous system looked foggy, I needed to alter my diet, and I had emotional issues. I had equally little news to report, at least about my health status, and e-mails between me and Adam's parents—Liz and Frank—became almost acriminous; his mother in particular contended I was not participating actively in my own self-healing, and I admitted I was not doing the daily visualizations recommended in Adam's books. These visualizations included exercises like imagining a lightning bolt coming down through the top of your head, and did not appeal to me. Adam could give me a few treatments, his parents explained, but what ultimately happened was apparently up to me and my participation.

Adam claimed that a bird he encountered "telepathically downloaded all the information of the universe into his brain."

While being a seemingly truant patient, I had, however, been asking questions. Edgar Mitchell, one of Adam's strongest proponents, told me quite openly on the phone that he never had biopsy-proven cancer. "I had a sonogram and MRI that was consistent with renal carcinoma," Mitchell recalled when I interviewed him, "which is about the best they can do without a biopsy. I didn't have the biopsy." Adam worked on Mitchell from December of 2003 until June, when the "irregularity was gone and we haven't seen it since." But he didn't have the biopsy. Is Mitchell convinced it was cancer? Sure. Is there any definitive proof? No.

Ronnie Hawkins's story also raised questions: Bryce Taylor, chief of surgery at the University Health Network in Toronto, opened Hawkins up in 2002 and discovered a hard lump at the head of the pancreas, entangled with major veins and arteries, too difficult to remove. The lump kept growing—consistent with malignancy but still, three biopsies failed to turn up cancer cells. Adam worked on Hawkins from a distance; in addition, the rocker told the *Toronto Sun* in 2003, "I'd have to go into hours to tell you about all the Indian recipes and stuff that was sent to me . . . plus I doubled up on the whisky and dope. . . . I don't know which one cured me, but it might have been a combination of all of it." Not exactly a proven cancer cure. As for other, less famous individuals, there was the typical range of anecdotes—some with cancer had died, others were still alive; a woman with fibromyalgia told me she'd been cured of it by Adam

Researching Adam a little further, I used a neat search engine, waybackmachine, to view his earlier, archived Web

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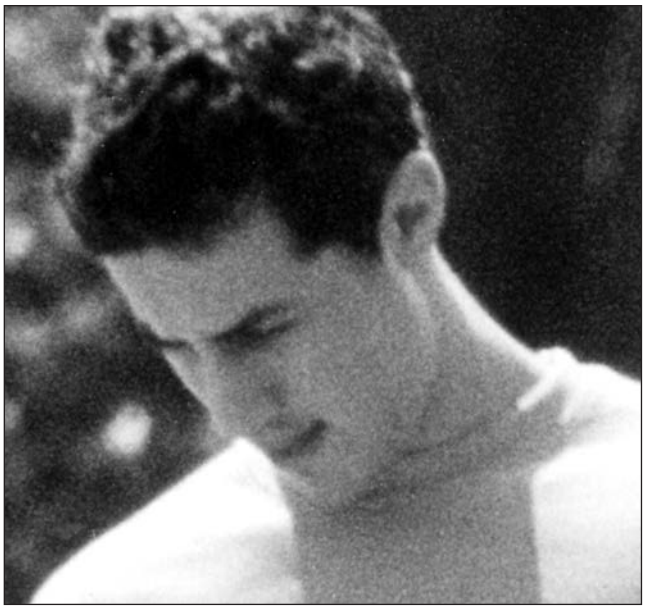


Adam Dreamhealer (Photo by Daniel Loxton.)

pages, which included other domain names, such as distanthealing.com and energyhealer.com. In three years the healer had blossomed remarkably. His homepage of June 2002 was headlined in all capitals: "LONG DISTANCE XRAY VISION AND HEALING." Further down the page: "Please do not confuse this site with all the phoney healers on the net. This is a very real ability." In a June 2002 FAQ on the Web page, Adam explained: "The healer possesses a gift, which allows him to have x-ray vision and the ability to remove the energy blocks . . . he energetically enters your body and removes the blockages . . . the same process seems to work whether the person is sitting next to the healer or on the other side of the world." The FAQ also noted that "To save time and increase the healing please let us know the exact problem you are having. This allows us to concentrate on that area of the body, rather than doing a complete body scan which takes more energy. If you are interested in just witnessing the ability he has at determining where you have problems then feel free to keep your ailments to yourself."

Back then the cost of a brief report was $20, removing energy blockages another $25. By November of 2002, the front page had a map of the world, and captions noting that "Adam is a sixteen-year-old healer. . . . Recently helped people with pancreatic cancer, tumors, asthma and breast cancer. . . ." By the time Adam published his first book, *Dreamhealer*, X-ray vision had shapeshifted into "quantum holographic healing." Adam cited Edgar Mitchell as inspiration for this new interpretation; indeed, says Mitchell, "My role has been largely to explain to him how I see him getting the information." By 2005, Adam's weekend workshops were selling out months in advance, with 300–500 people gathering to pay $99 Canadian for a day of wisdom and group healing. A requirement of the workshop: read both of Adam's self-published books, priced at $15, distributed by Hampton Roads Publishers. In addition, a book deal was in the works with Penguin Canada, for the first two books along with a new one, for a substantial sum. So, you do the math.

The Big Bird and the Big Lie

There is a theory in psychology called the "Big Lie"—if you tell a colossal lie often enough, people tend to believe it's at least partly true. And yet who, if they pause for just a moment to reconsider, can believe the story that a bird downloaded all the information in the universe into one teenager's brain? How exactly was this feat performed? And what does it even mean? Can Adam explain string theory, tell us what happened before the Big Bang, and verify whether panspermia is a valid theory? Does he know what tubeworms at the sea vents are made of, and the elements at Earth's core? Does he have information about the torque of DNA and how it changes enzyme reactions? What *is* all the information in the universe?

Adam likes to tell the story of this bird at his workshops, and when I interviewed him last spring, and asked his mother to remain on the phone line with us, I asked him to recount the story for me personally. At age sixteen, he told me, he dreamed about a huge black bird that told him to go to "Nootka." "I had this vision in my sleep," said Adam, "it was such a vivid dream there was no way I could ignore it," he told me. "I was soaring across the ocean, then running through the woods, and all of a sudden I stopped and a big black bird was sitting in front of me, and it told me I had to go to Nootka. I didn't know where Nootka was, never heard of it before." Adam told his family, they did a bit of research, and discovered it was an island west of Vancouver island with water access only, and that a boat went there twice a week. The entire family went to visit, and, said Adam, "I knew exactly where it was, I had this whole place memorized yet I'd never been there before in my life. I was walking along the main path for a bit and knew I had to turn off and go through the bushes . . . I saw the big black bird just like in my dreams, 100 yards away. It was massive, four feet tall, we all saw it." They took photos; the ornithologists at local bird stores, however, could not identify it. At workshops, Adam will flash a photo of the bird on a screen via projector.

I asked Adam if he would send me a few photos. I'd bring them to the American Museum of Natural History, where experts could surely tell me if he'd discovered a new species. That would certainly be news. Without missing a beat, he said, "We're negotiating with a major book distributor and we don't want any pictures out there before then." When I asked him why, since his book and lectures suggest that he sees in such detail into the human body, he had only seen that my nervous system was foggy, he replied, "There are no other major issues that stand out at all, it's a fog throughout the whole thing. I don't know what you're expecting. That's pretty much all I can describe. Usually there's a lot more little things here and there that I could describe but with you it's just the nervous system."

Not everybody believes the Big Bird Story; on a newsgroup called alt.slack in 2003, there were some witty comments about Adam's claims. Someone by the *nom de plume* of "ghost" asked, "Quantum healing ability? Does that mean he comes in little packets?"; another fellow answered, "No, it means if the healing doesn't work, it actually did work, you're just looking

at the wrong cat." I laughed out loud at that one, and hope that if Schrödinger were alive, he would too.

But what is most interesting about Adam may be the phenomenon of distant healing itself—a field which the NIH's Center for Complementary and Alternative Medicine has spent $2.2 million funding in the last five years. I wonder whether the surge of interest in this particular form of healing is, in large part, the result of our global community—one where airplanes, television, cellphones, satellite, and the internet connect us at a distance anyway. In this cyber-soaked, science-savvy world, distant healing may be the latest battleground over God. As Anne Harrington, Ph.D., co-director of the Harvard University Mind, Brain and Behavior Initiative, bluntly states: "If prayer works—in ways that cannot be attributed to the placebo effect, social support, or stress reduction—then medical science has apparently obtained evidence for God's existence."

No wonder this field is so hotly contested and folks like Adam so revered by some. Research into distant healing is now regularly conducted by scientists at universities as respectable as Columbia and Harvard and Duke. A survey of 31,000 adults by the CDC last year found that 43 percent pray for their own health, while 24 percent ask others to pray for their health—that means one quarter of Americans are, in essence, involved in distance healing. Emotions run hot and high: "It's an outrage that the NIH is funding this kind of research," says Dr. Richard Sloan, a professor of behavioral medicine at the College of Physicians and Surgeons at Columbia University in New York. "It's just horrible science and represents a rise in irrationality which is very dangerous to all the scientific accomplishments of the last three hundred years." In turn, says Larry Dossey, M.D., executive editor of the journal *Explore*, author of *Prayer Is Good Medicine*, and well-known for his interest in all aspects of what he calls non-local consciousness, including distant healing: "I believe the fact that a shift happens, period, means the interaction of consciousness with the so-called material world, which has been denied in modern science. Whether one moves quanta or mountains is not the point. That either happens is what's significant."

I agree with Larry Dossey—if consciousness can interact at all with "matter," something interesting is going on—and on the spectrum of mysticism and skepticism, I find myself exactly like the double helix: wound of one strand of rationalist science, and one strand of pure mystic. As Robert Provine wrote in a recent essay on John Brockman's The Edge forum, "There is not any 'blue' in electromagnetic radiation, pitch of B-flat in pressure changes in the air, or sweetness in sucrose. All are neurological derivatives of the physical world, not the thing itself." We're all in search of the thing itself. Few of us, even the most supremely rational folk, don't in some corner of ourselves hold open a door for mystery, for the "thing" that is ultimately platonic in its nature—whether it's math, a unified field theory, or a personal God. As William James wrote, "The deepest thing in our nature is the region of the heart in which we dwell alone with our faiths and fears." Whether we're inclined to make a Pascalian wager, or argue against miracles as Hume did, we all live in a world influenced by deeply held beliefs—and not all those beliefs can be wholly accurate or objective.

But when considering someone like Adam, or in attempting to study distant healing, we should take extraordinary care. What constitutes a dose of prayer, anyway? These studies are exceedingly hard to design, and no study follows exactly the same protocol, rendering meta-analysis very slippery. What of all the unknown sources of prayer? As Richard Sloan points out, "When you conduct one of these studies, you have no control over friends, family, colleagues, neighbors, and members of religious congregations praying for someone who is ill. And that's not to mention the members of religious orders who pray daily for all the sick around the world. It's likely that all this supplemental prayer vastly exceeds the distant healing from designated intercessors in the studies."

Whether you are a theist, deist, nontheist, atheist, or pantheist, distant healing and its close relative, petitionary prayer, are questionable. "The problem with distant healing and petitionary prayer is that they don't accept that the universe is beyond our control," says bioethicist Stephen Post of Case Western University, head of the Institute for Unlimited Love. "Even if you're a theist you cannot presume God will answer your prayers. There's a certain human arrogance in thinking that somehow I can impose my will on the divine, and that I can actually measure prayer's effect."

Perhaps the most practical studies in distant healing are the ones that narrow their band of influence to a very precise and specific marker. In 1990, for example, William Braud, M.D., placed red blood cells in test tubes of hypotonic saline—which usually causes hemolysis, where the cells swell and burst. He reported that distant intention significantly slowed this process, protecting the cells. Why aren't there more studies like this? Why don't institutions like Harvard and Duke, instead of studying prayer on far-flung humans, follow the traditional arc that biotechs and pharmaceuticals do when attempting to test a new drug: start with in vitro studies. Why not see if healers—in the same room, the next room, the next town, or the next country—can significantly impact hemolysis or bacterial growth in a petri dish? Then move on to animal studies, which can be conducted in controlled conditions. Leave humans for the "clinical" trials, *if* the drug proves effective and safe.

When we hope that a kid like Adam is real (particularly when he borrows the language of quantum mechanics, even in a very crude way), or design studies to see if distant healers can impact the outcome of cardiac patients, it's because, as Anne Harrington pointed out, we really *are* arguing over God. The problem is, we are attempting to use science to win the argument—and in a sloppy fashion. We don't study healing on blood cells and bacteria much because they aren't the stuff of theology (except of course, to biologists, who marvel at them under the microscope). Slowing bacterial growth just won't suffice for a Pascalian wager. We need a four-foot black bird on the island of Nootka for that. □

This article concludes a three-part series, marking the first return to our pages by Martin Gardner since he retired his Notes of a Fringe-Watcher column, which ran in every issue of the SKEPTICAL INQUIRER from Summer 1983 through January/February 2002. — Editor

The Memory Wars

Parts 2 and 3

Most of the cases against priests for sexual abuse against young parishioners are supported by full confessions or independent evidence of guilt, but that is not true of claims of revived memories said to be repressed until uncovered decades later by suggestive therapy or by a triggering event. Unless corroborated, these should probably be considered fantasies. The case of Father Paul Shanley may be an example.

MARTIN GARDNER

Part II

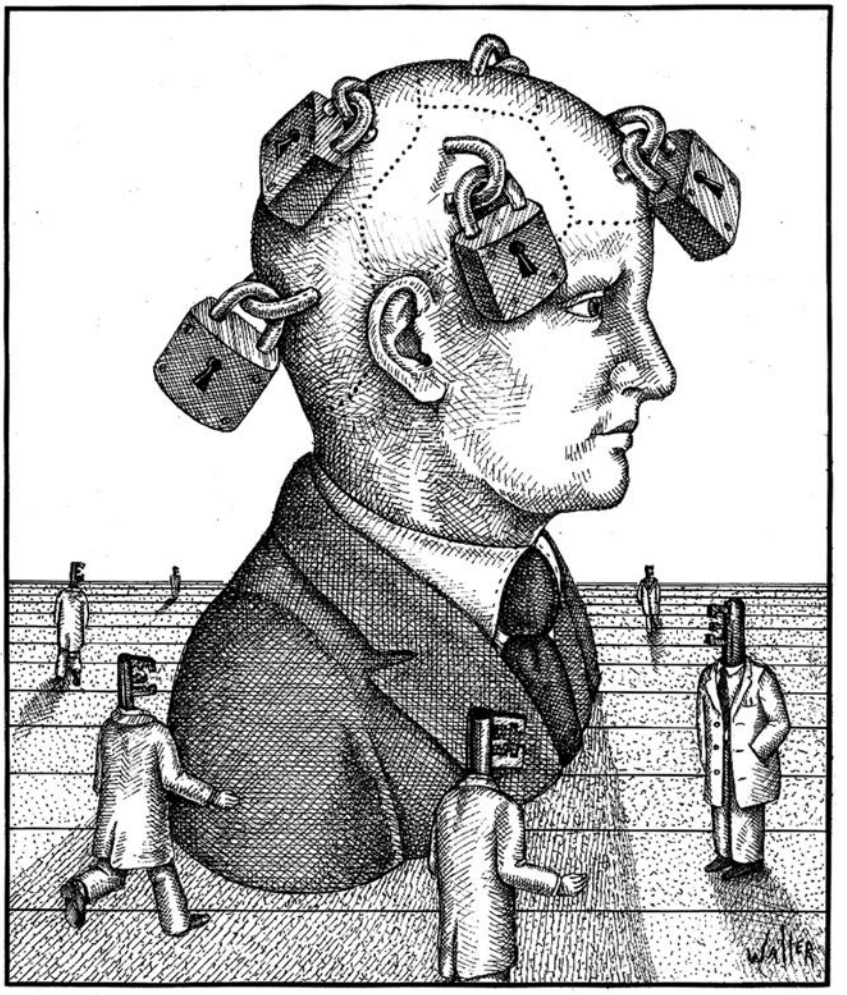
In 2002, the American Catholic Church was rocked by the greatest scandal in its history. Hundreds of gay priests were defrocked for sexual abuse of altar boys and other young members of their parishes. Church superiors were bitterly attacked for efforts to conceal misconduct. Huge settlements, totaling hundreds of millions of dollars, much of it undisclosed, were paid to the victims. Payments loomed so large for a parish in Spokane, Washington, that it declared bankruptcy. More than sixty churches have closed for lack of funds.

Most of the victims had never forgotten their abuse. Moreover, there usually were full confessions by priests, or

independent evidence of guilt. In February 2005, the Roman Catholic Church released some shocking figures. Over the previous three years, 5,148 American priests had faced 11,757 allegations of sexually molesting victims under eighteen. The Church's total cost of settlements, including care and counseling for both victims and abusers, legal fees, and other related expenses, was greater than $750 million. In 2003, settlement costs were $85 million in Boston's diocese alone.

In one widely publicized case, false-memory syndrome played an obvious role. In 1993, Chicago's much-admired Cardinal Joseph Bernardin was sued by Steven Cook for pedophilia. His charge was based solely on memories which Cook said he had totally forgotten until they were retrieved by a trauma therapist. Later, he became convinced that his memories, which he had believed he had repressed for seventeen years, were false. He recanted. Cardinal Bernardin was too kind to sue the therapist.

The Church sex scandal shows no sign of abating. Hundreds of lawsuits, civil and criminal, against priests now await court action. In 2002, Paul Fox Busa, an Air Force police officer in Colorado, then twenty-four, read an account in *The Boston Globe* of charges by the Commonwealth of Massachusetts against Paul R. Shanley. Father Shanley had been the priest of St. Jean's Church in Newton, a town near Boston, long considered the nation's most Catholic city. Busa had attended Father Shanley's church between the ages of six and twelve. The *Globe* article, Busa maintained, together with a phone conversation with a childhood friend who also claimed to have been molested by Shanley, had suddenly restored his long-repressed memories of having been raped by Shanley no less than eighty times.



So stricken was Busa by these recollections, that he said he sobbed for six hours. Nauseated, agitated, confused, he experienced convulsions and even lost faith in his religion. He considered suicide. Returning to Newton, he filed a civil suit against Cardinal Bernard Law, then head of Boston's archdiocese, for allowing Father Shanley to remain a priest even though the cardinal was aware of Shanley's compulsions.

Busa's charges led to the arrest of Shanley, then seventy-one and living in San Diego. He was handcuffed and taken back to Massachusetts, where he was jailed for seven months before being released on a $300,000 cash bond. The Church defrocked him in 2004.

Openly gay, Shanley was constantly in trouble with the Church over his sexual romps. The media dubbed him a "street priest" because of his tireless efforts to aid Boston's young drifters and drug addicts. It was widely reported that he had attended the founding meeting of the infamous NAMBLA, the North American Man/Boy Love Association. He wore his hair long, with sideburns, and favored blue jeans over the traditional black suit and white collar. One reporter described him as "part hippie, part nerd."

Shanley never denied his gay lifestyle, always insisting that his sexual escapades were with youths of consenting age, never with children. For years, Boston's archdiocese did its best to conceal Shanley's behavior by shuffling him here and there to other parishes, at the same time secretly settling three civil lawsuits against him.

Gregory Ford, the childhood pal whose phone conversation helped trigger Busa's memories, now entered the fray. He claimed to have been molested by Father Shanley when, like Busa, he had been an altar boy at St. Jean's Church. Also like Busa, Ford said he had completely forgotten these abuses until he read the *Globe*'s story about Shanley, then called the "most hated man in Massachusetts."

For more than twenty-five years, Martin Gardner wrote the Mathematical Games department in Scientific American. *He is the author of some seventy books, of which* The Annotated Alice *is best known. His latest book,* Are Universes Thicker Than Blackberries?*, consisting in part of his columns in* SKEPTICAL INQUIRER, *was published last year by W. W. Norton.*

JoAnn Wypijewski is a New York City writer. In her beautifully composed, carefully researched article, "The Passion of Father Shanley" (*Legal Affairs*, September/October 2004), she had this to say:

> For Busa and Ford, the memories of abuse are nearly identical . . . all of the criminal activity would have occurred before the ten o'clock Sunday Mass. Until Gregory Ford came forward, none of the thousands of children who attended [the church school] while Shanley was pastor reported anything untoward. No one is on record at the time as having noticed anything unusual involving the boys and Shanley. Not their parents. Not the several women who taught the classes, including Ford's mother.

The Ford family, together with Busa and a third plaintiff, Anthony Driscoll, initiated a civil lawsuit against the Boston archdiocese. Driscoll was another of Busa's childhood friends. Like Busa and Ford, he said he could not recall abuse by Father Shanley until he read about him in *The Boston Globe*. Affidavits were filed by twenty-one other men who claimed the priest had molested them when they were children in his parish. Four of these accusers were doing time in prison for burglary. The Boston archdiocese offered a settlement of $85 million which, incredibly, the three turned down! The lawsuit was finally settled in 2004. The *Globe* reported that Ford received $1.4 million. Busa was awarded a half million, and Driscoll's take was not disclosed.

The three plaintiffs were not content with their awards. Apparently, they felt that, although Shanley had been indicted by a grand jury in 2002, he had not yet been punished for his crimes. Joined by a homeless man whose name was never revealed, the four men persuaded the Commonwealth of Massachusetts to take criminal action against the priest. Like Busa, Ford, and Driscoll, the homeless man claimed his memory of childhood abuse by Shanley did not surface until he read about the priest in a Boston paper. He said that while on a flight to Las Vegas to gamble, he had sudden flashbacks of being molested by Shanley when he was a child in the priest's parish.

The prosecution's case began to weaken. Three of the four accusers were dropped by their attorneys. Greg Ford was the first to go. Damaging information about him slowly emerged in pretrial hearings. He had once claimed to have been raped by his father, and on another occasion, by a cousin. He had been in a mental facility seventeen times. On several occasions, he tried to kill himself. Once he threatened to burn down his house. Contradictions turned up in statements about when his memories were recovered. Prosecutors decided that Ford was a severe burden to their case.

Driscoll was the next to leave. Like the other three plaintiffs, he said his memories of Shanley's abuses were not recovered until he read about the priest in a Boston paper. Prosecuting attorneys became suspicious that he was fabricating his memories.

The nameless homeless man turned out to be an alcoholic and drug addict subject to frequent hallucinations. Twice he attempted suicide. When he failed to show up for a hearing, and couldn't be found, the prosecution wrote him off as another liability. None of this information about the three dropouts was allowed to reach Shanley's jury.

A bizarre incident emerged in the hearings. I quote again from JoAnn Wypijewski:

> When Ford was 11, Driscoll held a sharpened pencil upright on Ford's chair as a joke. Ford sat down on it and howled in pain. . . . Doctors treated Gregory for a puncture wound to the buttock. . . . Driscoll, Busa, and Ford never forgot . . . that incident. Driscoll says he lives with guilt for hurting Ford.
>
> . . . In Ford's recovered memories, however, the pencil incident prompted Shanley to arrive on the scene and resulted not in a puncture wound but in the rape of Ford and an anal laceration. This version of the event has been repeated by Ford's parents and lawyer. It was, according to Busa, the subject of the first conversation he had with Ford, by phone in February 2002, after he heard of his friend's recovered memories.

Although false memory syndrome (FMS) played a crucial role in both the civil and criminal trials of Father Shanley, the curious fact is that the memories of all four original accusers were not based on therapy. They had allegedly been triggered by the mere reading of a newspaper! In the civil case's pretrial hearings, expert witnesses for the defense did their best to enlighten the jury about FMS. Harvard Medical School professor Harrison Pope testified that "no reputable studies have shown that traumatic memories can be repressed." Richard McNally, a Harvard experimental psychologist and author of an authoritative book, *Remembering Trauma*, told the jury, "There is just no mechanism in the mind for keeping the door shut to traumatic memory."

The moral of all this is clear. When claims are made about revived memories of pedophilia—recollections said to be repressed until uncovered decades later by suggestive therapy or by a triggering event—they should be considered fabricated fantasies unless they can be corroborated by a confession or by strong independent evidence.

"Shanley says every encounter was a willing encounter," writes JoAnn Wypijewski. "His accusers say every encounter was an abuse. Perhaps it was something in between. . . . Perhaps, given the evasions of memory, the lure of money, or self-justification, neither accused nor accusers even know the truth anymore."

Part III

On January 25, 2005, in Cambridge, Massachusetts, the criminal trial of Father Shanley got underway. The priest, then seventy-four, was accused by the Commonwealth of Massachusetts of multiple counts of rape and indecent sexual assault on a child. That child was Paul Busa. As we have seen, he remained Shanley's sole victim. The other three accusers were dropped from the case as evidence accumulated during preliminary hearings suggesting that their claims were not trustworthy.

Busa, twenty-seven, stuck by his story that Shanley had repeatedly raped and sexually molested him in other ways while he attended Shanley's St. Jean's Church from the ages of six through twelve. He claimed he had totally forgotten these abuses until he read an article about the priest in *The Boston Globe* and talked on the phone to his childhood friend Greg Ford.

Father Shanley pleaded not guilty. Gone were his dark locks, sideburns, and blue jeans. His hair, now gray-white, was closely cropped. Tall, bespectacled, wearing a neat business suit, he looked like someone's distinguished grandfather. Throughout the

trial, he sat expressionless, grim-faced, never a hint of a smile. He knew that the chief prosecutor, Lynn Rooney, had earlier sent John Geoghan, another defrocked priest, to prison, where he was soon murdered by inmates.

Was Busa actually raped eighty times by Father Shanley? Or was he the innocent victim of FMS, his memories false but vivid in his mind and honestly believed? Did he consciously fabricate his memories, basing them on abuses detailed in *The Boston Globe*'s articles and hoping for a large settlement of his civil suit? Indeed, he was given half a million dollars.

Why was Busa not content with this award, instead initiating a criminal lawsuit against the priest? It was suggested that although Shanley had been indicted by a grand jury in 2002, he had not yet been punished, and Busa wanted to see the priest suffer for his crimes. Busa's intense dislike of gays surfaced during cross examination. He admitted that in a journal prepared for a personal injury lawyer, he had referred to Father Shanley as "that faggot."

During three days of cross examination by Franklin Mondano, the defense attorney, Busa said that Shanley's many abuses occurred in his parish at four different places: the boy's bathroom, the rectory, the confessional, and among empty pews. Offenses included a finger penetration of his anus, repeated anal rapes, and oral sex performed by the priest. He said Father Shanley had cautioned him not to tell anyone about these incidents because no one would believe him. Most of the molestations, Busa claimed, took place after Shanley had taken him from catechism class.

Busa described a card game that resembled strip poker. It was called war, and he had forgotten the rules. Each time he lost, he had to remove an item of his clothing. When Shanley lost, he did the same. Asked what happened after both were naked, Busa replied, "I don't remember." As the years passed, Busa said, the rapes and other molestations stopped. They were replaced by erotic touching, caressing, and rubbing of his behind and crotch. After his memories of all this were revived, he became so ill and confused that he sought psychiatric help. A doctor at the Air Force center where Busa was stationed advised him to carry an "emotional barf bag." His body, from chest to legs, broke out in a severe rash.

Mondano brought out the damaging fact that immediately after his memories surfaced, and before he checked into the Air Force's hospital for psychiatric counseling, Busa telephoned a personal injury lawyer. He admitted under oath that starting in high school and lasting several years, he had a severe alcohol problem. As a young man, he had played semiprofessional baseball for several teams. Indeed, his ambition then was to rise to the major leagues. He blamed the failure of his baseball career on the unconscious influence of Father Shanley's assaults.

Busa also spoke at length of another addiction, the abuse of steroids. At times, he illegally smuggled the drug from Mexico. Busa said the main reason he took steroids was that he was then "too fat," weighing over 200 pounds. He believed that steroids would replace his fat with muscle. When he was in high school, and his father first learned about the steroids, the father ordered his son out of the house. It was several months before Busa returned.

Busa moved many times, always needing cash and a place to bed down. There was a period, he said, when he slept on park benches and in parking lots. He never stayed long at a job. And life was difficult in the Air Force. He said he had been promised flight training, but he later learned that his recruiting officer had lied about this as a possibility. After his mental breakdown, the Air Force gave him an honorable discharge for health reasons. Busa blamed all his problems, including alcohol and steroid addiction, on Father Shanley's molestations.

Oppressed by Mondano's polite but at times withering questions, at the end of two days of grilling, Busa fell apart on the stand in a fit of weeping. The next day, his wife testified that her husband had been so devastated by his recovered memories that night that he broke into sobs, got up from a sweat-soaked bed, curled into a ball on the floor, and shook uncontrollably.

Questions about the reliability or unreliability of the retrieval of long-repressed memory played a pivotal role in the trial. The prosecution's expert witness was Dr. James Chu, a clinical psychiatrist at Harvard's medical school. Chu is among those experts who dislike the term "false memory syndrome." They prefer instead to speak of "dissociative amnesia." This term reflects an unconscious ability to disconnect from one's awareness of all memories of past horrendous experiences. Truth, of course, Chu said, "is always a factor." He admitted that sometimes false memories of long-past sexual traumas can be fabricated by suggestive therapy or triggering events, but he estimated that only about ten percent of such recovered memories are false.

How Dr. Chu arrived at ten percent was unclear. He did say that out of nineteen of his patients who professed recovered memories of pedophilia, he was surprised to find that in seventeen cases, there was independent corroboration.

I thought Mondano's cross-questioning of Dr. Chu was unduly soft, and his final summation weak. There was no mention of the myriad cases, only a tiny fraction of which are mentioned in this article, where recovered memories of child abuse proved false. No mention of the innocent fathers, grandfathers, uncles, and day-care personnel who were sent to prison for unconfirmed pedophilia. No mention of false recollections of painful experiments on persons abducted by extraterrestrials in flying saucers. No mention of false memories of ritual horrors performed in nonexistent satanic cults. No mention of recovered memories of traumas in past life incarnations.

Two former catechism teachers testified that they had no memory of Busa ever being taken from class by Father Shanley. Four witnesses, who as children attended classes at St. Jean's parish, also testified. One woman described Busa's class as "chaotic." The rowdiest of the boys, she said, were Busa, Ford, and Driscoll. Each of the trio was often told to leave the room and stand outside the door until allowed back in. Three of the witnesses could not recall Busa ever being pulled from the class by Shanley. The fourth remembered only one such incident.

Testimonies by the former teachers and students were, of course, strong refutations of Busa's claims that his eighty rapes occurred after Shanley yanked him from class and before Shanley performed the ten o'clock mass a short time later. It is hard to

believe that eighty such rapes could have taken place without a teacher or her pupils sensing that something odd was going on.

Throughout the trial, Nancy Grace, the perky host of a Court TV talk show that covered the Shanley trial, constantly expressed her outrage against psychologists and psychiatrists who maintain that memories of long-past traumas are almost never forgotten. She said she had a friend who recovered memories of child abuse, and she would stake her life on the friend's honesty. What Grace failed to understand is that patients who "recover" false memories are absolutely certain that their memories, usually created by many sessions of suggestive therapy, are genuine.

Elizabeth Loftus was her usual impressive witness for the defense. She has testified more than 250 times in recovered-memory cases and authored or coauthored some 400 technical papers. It is easy, Loftus argued, for false memories of pedophilia to be fabricated by suggestive therapy or by a triggering emotional event. This is not to accuse trauma therapists of deliberately trying to implant false memories. That would be criminal. Rather, there is the danger of a poorly trained therapist, believing firmly in long-forgotten abuses, unwittingly asking a leading question such as, "Were you in the bedroom when your uncle raped you?"

Loftus is well known among her peers for a famous experiment, similar to the one described in Part 1 of this series, about a boy and an imaginary mousetrap injury. The adults in the experimental group were each falsely informed that as children they had been lost in a supermarket. After being told this many times, about 20 percent of the subjects not only became convinced the incident had occurred, but developed vivid memories of details.

Loftus admitted that in a 1991 paper, she stated her belief in repressed-memory therapy, but added that during the next few years, numerous research papers refuting FMS changed her mind. As for the hundreds of papers defending the recovery of long-forgotten memories, she found them "fatally flawed." Toward the close of her testimony, a comment provoked rare court laughter. Asked if she believed a jury could reach a wrong verdict, she replied. "How about O.J.?"

Although not on the witness stand, writer JoAnn Wypijewski was interviewed on Court TV. Her opening remarks:

> I just want to point out that there is real cause for skepticism when, as in this case, you had three accusers who all claimed to have suffered the exact same abuse. All forgot the abuse at exactly the same time. All remembered the abuse at the same time. All saw the same psychiatrists. All hired the same personal-injury lawyer. All received cash payments from the church. Is such a coincidence of "recovered memory" really credible?

After three of the accusers were dropped by the prosecution during preliminary hearings, Wypijewski revealed that Shanley was offered a plea bargain of two and a half years in prison if he admitted guilt. He refused. Wypijewski quotes from one of Shanley's essays: "We can say some things without question. Any sexual act with the same or opposite sex is sinful if it is rape. Or if it involves children."

I caught the end of an interview with Wypijewski on another talk show. There, she accused the media of grossly distorting and demonizing Shanley's gay lifestyle. In no way, she said, does he deserve being called a "monster." As a flagrant example of media misinformation, she cited the oft-repeated charge that Father Shanley had attended a founding meeting of NAMBLA, the North American Man/Boy Love Association. Not true. Her investigation found that not only had he not attended this meeting, but he was never a member of NAMBLA.

"I am sorry beyond telling," Father Shanley wrote in a letter that was quoted by Wypijewski in her *Legal Affairs* article, "for the wrongs of my life and for the sorrow and anguish of which I have been the occasion. How I envy those who say in their declining years: 'If I had it to do all over I would not do anything differently.' For me it is the opposite: I would do many things differently. For one, I would never have become a priest and tried to wrestle with the mandatory celibacy and myriad consequences of that folly."

JoAnn Wypijewski was allowed to see Father Shanley's personal scrapbook. It contained "pictures of him as a teenage camp counselor . . . sensitive shots of sensitive boys his own age, neatly dressed, hands on hips; here a quote from Oscar Wilde, there a photograph of Rock Hudson. . . ."

Wypijewski also checked one of Shanley's diaries. From it, she excerpts the following sad, haunting entry:

> Holy Week 1972: Midnight.
>
> Somewhere on Route 78 . . . I am overwhelmed with loneliness, ashamed at my pleas to God to find a way out for me. All my prayers should be for my people for whom there is no way out. How many 16 year olds are also lonely tonight on the road, on the run? Is it really so important for me to go on? The letters say so. They warn: "If you give up so must we. You are our hope." People shouldn't put such hope in a mere man, any man. It's almost sacrilegious. If they knew the madness in me, festering below the surface, they would join the ranks of my accusers. . . . My thoughts run to that beautiful whiskey priest of Graham Green's novel, the last one left in Mexico, underground, no good, yet he cannot leave.

On February 9, 2005, the jury unanimously declared Father Shanley guilty on all counts. A week later, the judge sentenced him to twelve to fifteen years in prison. The priest was led from the courtroom in handcuffs and leg shackles. He will be eligible for parole in eight years. There will be an appeal. The jurors, ignorant of the history of false-memory syndrome and its tragedies, and riveted by Paul Busa's sobbing, had no reasonable doubts.

When she testified, Busa's wife spoke directly to Father Shanley: "You are a coward who hid behind God. You are sick to your core." In a handwritten note, Busa said, "I want [Shanley] to die in prison, whether it's of natural causes or otherwise. However he dies, I hope it's slow and painful." "I want him to go to hell," Greg Ford's father said in court, "like all these victims have gone to hell."

If you would like timely information about the ongoing memory wars or wish to subscribe to the FMS Foundation's lively newsletter, the address is FMS Foundation, 1955 Locust Street, Philadelphia, PA 19103-5766. The foundation can also be reached at www.fmsfonline.org or 215-940-1045. □

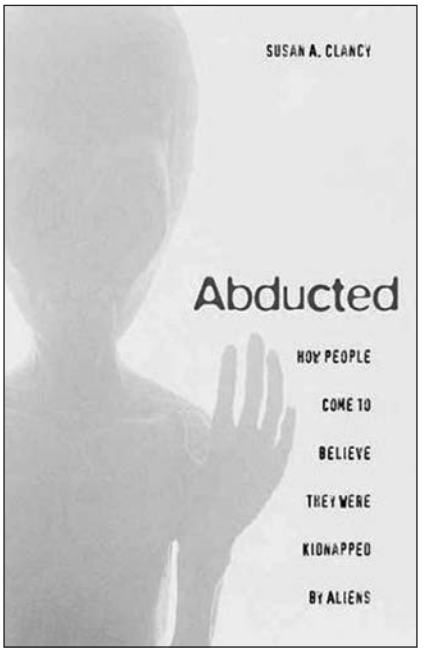
Alien Abduction Analysis

TERENCE M. HINES

Abducted: How People Come to Believe They Were Kidnapped by Aliens. By Susan A. Clancy. Harvard University Press. Cambridge, Massachusetts, 2005. ISBN 0-674-01879-6. 179 pp. Hardcover, $22.95.

The one question that my students always ask when I introduce the topic of alien abductions is how could anyone possibly really believe that such a thing had happened to them if they weren't just plain barking mad. It takes a fair amount of background in memory and related subjects to understand the psychology of the alien-abduction experience. In *Abducted: How People Come to Believe They Were Kidnapped by Aliens*, Susan Clancy has masterfully combined this background information with her own important research on alien-abduction claimants. She writes with the skill of an experienced novelist telling an exciting story. Consider the opening paragraph: "Will Andrews is an articulate, handsome forty-two-year-old. He's a successful chiropractor, lives in a wealthy American suburb, has a strikingly attractive wife and twin boys, age eight. The only glitch in this picture of domestic bliss is that his children are not his wife's—they are the product of an earlier infidelity. To complicate matters further, the biological mother is an extraterrestrial."

Following that opening, it took me only a very pleasant fall afternoon to read this book from cover to cover. The title of each chapter is a question, and the first chapter is titled, "How do you wind up studying aliens?" Here, Clancy gives a very open and personal account of how she became interested in the topic of alien abductions. The next five



chapters cover the most important questions that people ask about abductions and that abductees ask themselves. Chapter 2, "How do people come to believe they were abducted by aliens?", and chapter 3, "Why do I have memories if it didn't happen?", cover the various factors that go into the creation of an alien-abduction belief. Clancy makes it clear that no one wakes up in the morning with a full-blown abduction experience. Sometimes, the experience is created and molded from the starting point of a dream or hypnogogic/hypnopompic hallucination experienced during sleep paralysis. Other times, it starts with just a vague feeling that *something* had happened that needs to be explained.

According to Clancy, all of the abductees she studied "had sought out books, movies, researchers, and hypnotists in an effort to understand the things that were troubling them" (143). Since sleep paralysis and its related hallucinations are almost unknown to the general public, the real explanation is not available. Thus, when someone who has had such an experience reads one of the books touting the reality of alien abductions or hears such claims on television or elsewhere, it seems the only explanation available. If they then fall in with some alien-abduction guru and support group, techniques such as hypnosis and guided imagery are used to reinforce the seeming reality of the event while adding much more detail. As Clancy notes, "Belief precedes memories because developing detailed, personal memories . . . requires intervention on the part of some kind of therapist" (63). Clancy does a marvelous job of describing sleep paralysis, the changeable nature of memory, and how hypnosis and other techniques are used to create false memories that become very real for the abductee.

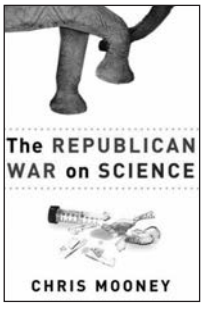
Terence M. Hines is a professor of psychology at Pace University and the author of Pseudoscience and the Paranormal *(2nd edition, Prometheus Books, 2003).*

A common claim in alien-abduction circles is that the abduction stories are highly consistent and thus must reflect real events. In chapter 4, Clancy shows quite clearly that the stories, while having overall similar themes, vary greatly.

In chapter 5, "Who gets abducted?", she reports the results of her own research on dozens of abductees, whom she interviewed and gave psychological tests. In general, these people are quite normal. They are certainly, with an exception or two, not "crazy," as so many first suspect upon hearing their tales. They are, however, more imaginative, creative, and fantasy-prone than the general population. They also score higher on a trait called *schizotypy*. This does *not* mean that they are schizophrenic, but "they're generally a bit odd. They tend to look and think eccentrically and are prone to 'magical' thinking and odd beliefs" (129). When one combines this type of personality with a strange nighttime experience and then adds in the efforts of UFO-abduction "experts," the memory of an experience that never actually happened is almost inevitable.

In the final chapter, "Why would I want to believe it?" Clancy discusses why some abductees prize their abduction experience, even though it was terrifying. When she asked, "'If you could do it all over again, would you choose *not* [emphasis in original] to be abducted?' No one ever said yes. Despite the shock and terror that accompanied their experiences, the abductees were glad to have had them. Their lives improved. They were less lonely, more hopeful about the future, felt they were better people. They chose abduction" (149).

Throughout the book, Clancy maintains a respectful tone toward the abductees. She clearly found almost all of them to be pleasant and interesting people. There are vignettes of about half a dozen of her subjects in the book. These illuminate the diversity of abductee experiences and personalities. The book is aimed at the proverbial intelligent lay person but it is well referenced with fourteen pages of notes at the end. Clancy has reported her research findings more formally in the scientific literature, and citations to her published research reports are usefully included in the notes. Clancy has produced a real masterpiece.



The Rampant Politicization of Science

PETER LAMAL

The Republican War on Science. By Chris Mooney. Basic Books, New York, 2005. ISBN 0-465-04675-4. 342 pp. Hardcover, $24.95.

"The modern Right . . . has ceded any right to govern a technologically advanced and sophisticated nation" (255). An unfair assertion? Purely political? How does *The Republican War on Science* author Chris Mooney dare to come to such a conclusion? He does so based on the numerous examples of the pernicious politicization of science by the administration of George W. Bush and the Republican-controlled Congress. The misuse of scientific information by the Right has led to bad policy in a number of areas. But, says Mooney, conservative philosophy alone is not sufficient to explain what has been happening. The current state of affairs is also due to raw politics. The conservatives who dominate the Republican party have relied heavily on two key constituencies, both of which have an overriding interest in the results of scientific research in certain areas. These constituencies are industry and the religious Right. Companies often invoke "science" to challenge federal regulation and to protect profits. Religious conservatives attempt to use science to advance their moralistic objectives. And in order to win elections, the Bush White House and members of Congress have bent over backward for both groups.

But what about the antiscience views and often abysmal ignorance of science among aging New Agers and postmodernists? They do not get a free pass from Mooney. He points out that those on the political Left have also abused science in the past, for example in the case of genetically modified foods, research involving animals, and sources of mercury pollution. But these misuses of science are minimal compared to the practices of the Right.

The book's focus is "on the most controversial area where science interacts with politics: providing input into decision-making" (16). Mooney quotes physicist Robert Frosch, a former NASA administer, to the effect that what politicians often want to hear from scientists is that science says that they must do what they wanted to do anyway. But just what does it mean to "politicize science"? Mooney defines the term as any attempt to inappropriately undermine, alter, or otherwise interfere with the scientific process, or scientific conclusions, for political or ideological reasons. To count as inappropriate, such incursions must undermine the integrity of science by turning it into just another tool of political advocacy.

This is followed by a catalogue of abuses during the George W. Bush administration. The list includes: undermining science itself, suppression of scientific reports, targeting individual scientists, rigging the process (e.g., by packing scientific advisory committees

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with ideologues). Other abuses involve interference with the results of scientific research. These include misrepresentations or distortions of findings, hyping and exaggerating scientific uncertainty about some subject, picking scientists on the fringe (whose views coincide with what politicians want to hear), ginning up contrary "science," and dressing up values in scientific clothing. Politicians of the Right have also demanded that "sound science" be the basis for the making of public policy, but as Mooney shows, this "Orwellian phrase" is rhetorical cover for attempts to ensure outcomes that politicians want by seeking to discredit what they label "junk science" that stands in the way of their goals. Industry-funded research is often devoted to "manufacturing uncertainty" about previously reported scientific results about, for example, smoking or water quality.

Mooney provides many examples of the politicization of science in the realms of business and religion. He describes, for example, how over the years many conservatives have attempted to gut or undermine the Endangered Species Act. The goal has often been to block or undo protections of species in order to facilitate logging, farming, and development.

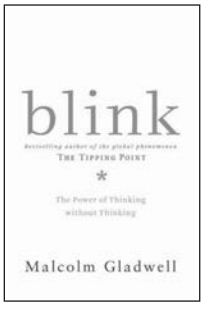
Members of the religious Right, meanwhile, have enjoyed great sway with the Bush administration and politicians. This has often resulted in clashes with the scientific community, as Mooney illustrates with his description of the controversy over the alleged link between abortion and subsequent breast cancer. You can easily guess which side the religious ideologues were pushing. Religious conservatives often try to use data and scientific arguments to make their case. Mooney writes, "They draw on Christian conservative scientists to make sure that these arguments sound convincing, and on think tanks and political connections to give them currency."

In the last chapter Mooney lays out a number of things to be done to rectify the situation, such as reviving the Congressional Office of Technology Assessment and mobilizing scientists, "the natural defenders of Enlightenment values." As matters now stand, however, the outlook is bleak.

In addition to sixty-one pages of footnotes at the back of this book are chapter-by-chapter lists of the many interviews Mooney conducted. Just as interesting is the list of those who did not respond to, or declined, his interview requests.

I assume that this book is written for the general reader and it thus would have been helpful to clearly lay out in one section how science differs from both pseudoscience and nonscience. Mooney occasionally addresses this critical topic but his brief statements are scattered throughout the book.

This is an important book but a dispiriting read, particularly as the disaster continues. A September 2005 issue of *Science*, for example, reports that the head of the Office of Women's Health at the Food and Drug Administration (FDA) resigned after the FDA announced another delay on whether to allow sale of the emergency contraceptive Plan B over the counter. The resigning head said, "I can no longer serve as staff when scientific and clinical evidence . . . has been overruled."



The Power of Not Thinking Is Not Very Great

WESLEY CECIL

Blink. By Malcolm Gladwell. Little Brown and Company, New York and Boston. ISBN 0-316-17232-4. 276 pages. Hardcover. $25.95.

Malcolm Gladwell's *Blink* is on multiple bestseller lists. With the notable exception of *The New Republic*, critics have received it well. Here is a book that purports to explore a powerful way of thinking that will help improve the world, presented by an author with a long list of articles on science, technology, and society. Gladwell is not an antiscience polemicist, an antirationalist religious fundamentalist, or a New Age mystic. Nonetheless, Gladwell promotes a program of not thinking that is hostile to the primary rules of rational discourse in a book that is fraught with logical failings, misuses of evidence, and anecdotal liberties.

It is worth identifying the flaws of the opening anecdote in *Blink*, as it provides a fairly comprehensive overview of the problems that recur throughout the book. Gladwell relies heavily on anecdotal evidence. The centerpiece of each chapter is a short story or series of stories that are supposed to illustrate some aspect of his theory of snap judgments. His opening chapter, for instance, starts with the story of a Greek statue the J. Paul Getty Museum in California had agreed to buy. Just prior to handing over the money, two art experts saw the statue and immediately knew it was a fake. They didn't know how they knew; they just "knew" (5). Of course, as the tale unfolds we discover that the two critics were right, that a scientist who had tested a sample of the statue was wrong, and that "In the first two seconds

Wes Cecil is an adjunct faculty member of Peninsula College, Port Angeles, Washington, who teaches a range of humanities courses including Critical Thinking and Foundations of Scientific Reasoning.

of looking—in a single glance—they [the critics] were able to understand more about the essence of the statue than the team at the Getty was able to understand after fourteen months" (8). As in the tales presented in other chapters, intuitive feeling triumphs over careful study.

Or did it? The difficulties with Gladwell's anecdote are manifold. First, one case does not an argument make. The long history of museums and collectors buying forgeries demonstrates quite forcefully that critics are often wrong in their judgments, snap or otherwise. The falsification of numerous Ming period vases and the controversy surrounding the paintings of Vermeer should give one pause before hastily siding with the intuition of art critics.

Second, and particularly disturbing, is the anecdote's attack on scientific analysis. Gladwell gives us another in a long line of stories wherein human intuition, represented by the art critics, triumphs over plodding science, in the guise of geologist Stanley Margolis. Predictably, the researcher who does a comprehensive study of the statue is presented as a plodding dupe. Margolis "spent two days examining the surface of the statue with a high-resolution stereomicroscope . . . removed a core sample measuring one centimeter in diameter and two centimeters in length . . . analyzed it using an electron microscope, X-ray diffraction, and X-ray fluorescence"(4). His conclusion, "the statue was old . . . [not] some contemporary fake" (4). Poor Margolis spent days studying this statue with all kinds of high-tech equipment and didn't learn as much as two art critics in seconds. Conclusion: careful study fails where snap judgment succeeds.

But was the science wrong? The statue turns out not to be old, as the geologist Margolis had concluded, but of recent origin. So Margolis's inference of age was incorrect. But were his measurements? Was his sample contaminated? Did he make an error in analyzing his sample? We are never told exactly what went wrong with Margolis's analysis, which makes it impossible to judge the nature of his error. That scientists make errors is hardly a novel concept. That a particular researcher should be held up for either scorn or pity—it is hard to tell which Gladwell wishes us to feel—based on a single false conclusion without any mention of his methodology or results is inexcusable in a book purportedly exploring the nature of thinking. Repeatedly in *Blink*, single failures of analysis are used as proof of a general shortfall in an entire method of evaluation. The cumulative message is quite clear: Careful scientific analysis does not work very well.

The third difficulty with Gladwell's opening anecdote is that it does not support his thesis. The snap moment of intuition the two art critics experienced does not solve the problem of how to determine whether or not a piece of art is a fake. Gladwell suggests we should trust the critics, not the scientists. Okay, but which critics? If there is critical difference of opinion about a piece of art, whom do we trust? Are we to make a snap decision about which art critics' snap decisions are to be trusted? This would put museums in the untenable, not to mention irrational, position of defending multimillion-dollar purchases solely on the basis of personal affinity with particular critics. Such mistakes have been made in past and will likely be made in the future, but that does not make them rational. In this case, the Getty trustees did what any responsible party would do; they consulted experts in a number of fields relating to the subject with which they were concerned. When presented with conflicting evidence, the Getty trustees pursued further research. Not a blink, but months and months of careful study by dozens of experts. Throughout the book, Gladwell presents anecdotes that do not, in the end, provide any concrete insight into how to usefully apply "blink think" strategies to real-world problems.

The greatest difficulty with Gladwell's first anecdote highlights another broad failing in his book: he misrepresents his evidence. The Getty anecdote is not simply a poor example of his point; it is misleadingly presented. At the end of the first chapter he asks why the Getty's own experts were misled about the statue after months of study. This is the first we have heard of the Getty experts and their months of study. In the initial telling of the anecdote we have the scientist testing the statue, then the arrival of the outside art critics. Why not mention that the Getty's critics had studied the statue even before Margolis was called in to run his tests? One suspects that if Gladwell mentions that other critics had seen the statue and responded intuitively that the statue was genuine, then the problem of trusting intuitive judgments is highlighted rather than the heartwarming, but inaccurate, tale of the triumph of human intuition over cold science. Repeatedly, Gladwell provides a single, and singularly convenient, interpretation of information that could be understood in many different ways.

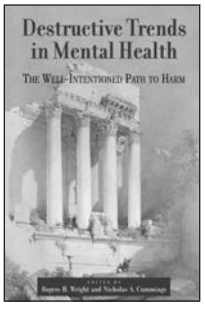
The charge of misrepresenting evidence is sufficiently serious to warrant a second example. Consider the case of "Kenna's Dilemma." Gladwell presents the story of Kenna, a talented young musician loved by musicians, managers, and industry insiders but who cannot get his big break because he scores poorly in focus group studies carried out by radio stations and music distributors. Gladwell tells us that "the world of radio is not as savvy" (187) as others who have known when to push an exciting new product despite initially cool public response. If radio stations knew what they were about, if they used the kind of blink think strategies Gladwell outlines, then they would give airtime to an artist like Kenna. The managers, musicians, and talent scouts knew immediately he was good, and now the radio stations and public are missing out. This thesis might be true.

The problem is that Gladwell presents the reader with a false dilemma by excluding all the other possibilities. Either Kenna is promoted, or radio stations are wrongheaded. Gladwell does

not allow that Kenna might be bad. The artists, managers, and talent scouts might be wrong about him and the radio stations might be right. Or, Kenna might be a great musician who will receive wide critical, though limited popular, success. Further, the people who love Kenna are interested primarily in music while the radio stations are interested primarily in money. This divergence of interests is in and of itself enough to explain a difference in response to the same artist. Unfortunately, each of these very real possibilities fails to support Gladwell's thesis and are never considered.

Consistently, Gladwell presents neat stories as if they provided clear evidence for his point when, as in the case of Kenna's Dilemma and the Getty statue, they really suggest any number of possibilities. Gladwell's steadfast refusal to consider alternative interpretations of his evidence is misleading. Poor logic, narrowly interpreted evidence, and a failure to consider any complicating factors mar the entire book.

By the measure of books by New Age mystics or anti-science religious fundamentalists, Malcolm Gladwell's *Blink* is not exceptionally irrational. However, due to its popularity and critical acclaim, *Blink* stands as potentially far more damaging to rational discourse. Replete with errors both logical and factual, it advances an argument hostile to the traditions of reasoned thought: that one can think without thinking. Primarily, Gladwell's *Blink* demonstrates that the dangers of not thinking are as prevalent as ever.



A Constructive Look at Destructive Mental Health Trends

BRUCE HARTSELL

Destructive Trends in Mental Health: The Well-Intentioned Path to Harm. Edited by Rogers H. Wright and Nicholas A. Cummings. Routledge: New York, 2005. ISBN: 0-415-95086-4. Hardcover, $34.95.

The conversation can get colorful when psychologists take on their own profession. In *Destructive Trends in Mental Health*, Rogers Wright, Nicholas Cummings, and their colleagues identify significant problems in the field of mental health that have arisen with the support of psychologists and allied helping professionals. They organize the material into three sections: political correctness, sensitivity, and diversity; mental healthcare economics; and political influence on science and practice. The contributors cover a lot of territory, usually with insightful vision and logical analysis.

In an introduction that ranges as widely as the chapters in the book, Wright identifies significant social harm caused by embracing the acceptance, permissiveness, and nonjudgmental attitudes essential for psychotherapy but that appear to lead to a lack of personal accountability and to a victim mentality when applied in the larger community. He notes that "childhood is now regarded as endless playtime," "lack of standards and discipline, student irresponsibility, uninvolved parents, fear of student complaints or retaliation, and . . . social promotion" have contributed to problems in the educational system, and "the wide application of nonjudgmental attitudes to violent and criminal behavior, coupled with the myth that counseling is a viable solution to chronic violence and habitual criminality, is a demonstrated failure." This tone is consistent throughout the book, and the theme of misapplication of psychological ideas connects the chapters in the first section.

Cummings and William T. O'Donohue link political correctness to the lack of accountability and responsibility in our society. They note that political correctness contributes to the view that because individuals have no choices in life, no one should be held responsible for his or her behavior. They assert that political correctness contributes to the culture of victimization "where everyone is a victim but no one is crazy." They also note how therapists enhance their incomes by promoting victimhood, and at the same time behave inconsistently with their espoused values.

Ofer Zur continues the theme on victimology by noting how American culture leads individuals to expect things to turn out well, and to believe that when they don't turn out well someone must be blamed and someone else must be the victim. He notes how this promotion of victimhood is related to the American emphasis on rights: when a right is not delivered, a victim is created, and "the victim is always morally right, neither responsible nor accountable, and forever entitled to sympathy." He states that the emphasis on not blaming victims perpetuates further victimization by placing research on certain topics off limits. He ends the chapter with recommendations for how therapists can work to reduce victimhood.

While some readers may agree with William Glasser's critique of mainstream psychiatry, his chapter is much more philosophical than scientific and is therefore inconsistent with many of the other chapters in the book. Glasser's arguments are not new, however, having been offered for a generation or more. He

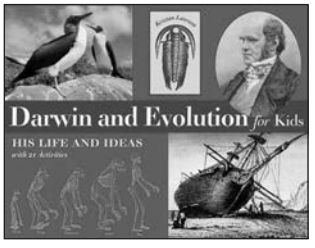
Bruce Hartsell has been a social worker for more than twenty years and is currently a lecturer in social work at California State University, Bakersfield.

accuses psychiatry of diagnosing illnesses that do not exist because "no matter what 'mental illness' a person may be diagnosed with there is no pathology in the brain. The correct diagnosis is *unhappiness. . . .*" He also states, "Because no reputable scientist has ever found anything pathological in the brain structure or chemistry of anxious or depressed patients, biological psychiatrists focus on what is fleeting, rapidly changeable, and can't be seen under a microscope: abnormal brain chemistry." One must conclude, then, that those scientists who claim to have found pathological brain structure or chemistry are disreputable.

In a rigorously documented chapter, Linda S. Gottfredson examines the suppression of intelligence research and how this suppression is related to political agendas that are inconsistent with scientific inquiry. She identifies three myths about intelligence: The first is the "egalitarian dogma" that demographic groups do not differ meaningfully in abilities and aptitudes. The second is that "differences in cognitive performance and educational performance can be traced to differences in family advantage." And the third is that "intellectual ability is the sum total of exposures to opportunities to learn." The latter myth holds "that equalizing students' opportunities to learn will equalize their learning." She notes that policies based on these myths have fallen short of achieving their goals, and will continue to do so.

In another thoroughly documented chapter, Scott O. Lilienfield, Katherine A. Fowler, Jeffrey M. Lohr, and Steven Jay Lynn essentially summarize their book on pseudoscience in psychology. William T. O'Donohue and Christopher Dyslin comment on the loss to science when professional associations take political positions beyond the limits of scientific knowledge. In a chapter that reiterates the victimization theme from earlier in the book, John K. Rosemond examines the politics of diagnosing children as having illnesses when alternative explanations for their behavior might lead to better results.

The final chapters essentially argue for rational thought and science in public policy and the political arena. Much of the thinking in this book is consistent with that argument. Those who love science and reason recognize the value of using them as tools in many areas of life. Although a few of the chapters are weak on science, reason, or both, the other chapters are well worth reading. The authors write with passion about difficult issues, and the spirit and tone of the book are hopeful. Mental health practitioners and their patients can learn much from the book.



A Portrait of Darwin for Kids

GREG MARTINEZ

Darwin and Evolution for Kids: His Life and Ideas with 21 Activities. By Kristan Lawson, Chicago Review Press, 2005. ISBN 1-55652-502-8. 146 pp. Softcover, $16.95.

It is a peculiar thing to read a children's book about evolution and finish it with a warm feeling of pride and admiration for the author's bravery in tackling the subject so directly and unapologetically. Aimed at an audience of preteens and teens, Kristan Lawson has written a biography of Charles Darwin that is clear and engaging, and, above all, brave for its forthrightness about the focus of his life: evolution and natural selection. It does not shy away from the controversy that has surrounded Darwin and evolution, and that is its finest accomplishment.

Lawson, whose previous publications are primarily idiosyncratic travel books, produces not only a clear and lively biography of Darwin, but effectively weaves his personal story into a history of the currents of thought in the science of biology—including Lamarck, Linnaeus, Malthus, Hutton and Lyall, Erasmus Darwin, Huxley, and Wallace. These figures serve to deepen and broaden an understanding of the science that led up to Darwin's great synthesis of evolution and natural selection.

Lawson writes engagingly of Darwin's youth and his uninspired education. Young Charles is yet another example, like Einstein, of a youngster of whom adults wring their hands over, fretting over his clumsy and listless efforts at formalized education, only to blossom into a blinding brilliance once he finds his true calling. Darwin found his in the world of animals and insects, and his fabled voyage on the HMS *Beagle* provided him with his "eureka" moment that in actuality he struggled with for years of thinking and writing, taking an almost two-decade detour between his earliest drafts of a theory of evolution and its publication (much of which was spent studying barnacles). It was his interaction with Alfred Russel Wallace in 1858 over a paper of Wallace's describing a theory of evolution that exactly matched Darwin's own that spurred him on to finally complete and publish *On The Origin Of Species* the next year. The book would bring him both worldwide fame and ridicule.

Lawson's book has a lively and open design and is richly illustrated with photographs and charts. The twenty-one activities in the book are excellent

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illustrations of the concepts of evolution and the inheritability of traits, but often are not suited for children younger than early adolescence. They usually require extended periods of time and space for the execution of the experiments, though some are very simple and can be performed with paper and pencil and some patience on the child's part.

Lawson's coverage of his topic is expansive and eclectic. He draws on a wide variety of sources—as far back as Bishop Ussher's determination of the age of the earth and as recent as the school textbook controversies in Alabama and Kansas—to explain the nature of the resistance to this clear and convincing scientific theory. A lively recap of the Scopes Trial is a particularly entertaining section. Genetics and its impact on evolution is discussed, as is a carefully presented section on Social Darwinism. The book concludes with a brief speculation on the future evolving of humans and other species.

Often, discussions of evolution will fall into a position of weak accommodation, in which each side of a disagreement is allowed its say, and nothing is resolved. Science, however is not a matter of everyone having their own opinion. The empiricism of the scientific method sorts good, correct ideas from bad ones, its own form of natural selection. Lawson ably discusses the religious objections to evolution and the idea of creationism, dismissing them firmly and plainly stating that evolution has withstood scientific scrutiny over almost one hundred and fifty years and is a clearly and completely accepted explanation for life on this planet. He never condescends to his subject and his audience by apologizing for Darwin and the strength of his theory.

Lawson is steadfast in defending Darwin and evolution from the unrelenting assault that has burnished the theory since its publication more than a century ago. It is a sad thing that evolution still requires defending, but with *Darwin and Evolution for Kids* Kristan Lawson has provided parents and teacher with a splendid tool for education. □

SCIENCE BEST SELLERS

Top Ten Best Sellers

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   Howard Eves
3. ***The Road to Reality: A Complete Guide to the Laws of the Universe***
   Roger Penrose
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   Lisa Randall
5. ***Concepts of Modern Mathematics***
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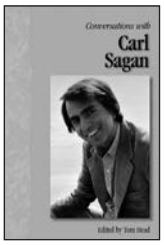
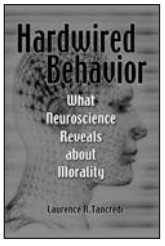
9. ***What Is Mathematics?: An Elementary Approach to Ideas and Methods***
   Richard Courant and Herbert Robbins; revised by Ian Stewart
10. ***Deep Down Things: The Breathtaking Beauty of Particle Physics***
    Bruce A. Schumm

By arrangement with *Scientific American* (www.sciam.com), January 2006.

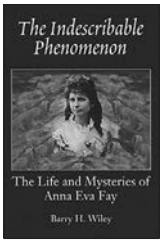
Listing does not preclude future review.



***Conversations with Carl Sagan.* Edited by Tom Head.** University Press of Mississippi, Mississippi. 2006. 194 pp. $50 hardcover, $20 paperback. Sixteen interviews—or articles based on interviews—with Carl Sagan spanning a twenty-six-year period from 1973–1996 are collected in this book, part of the University Press of Mississippi's *Literary Conversations* Series. Organized chronologically, they explore projects Sagan was working on at the time of each interview and a variety of wider issues about science, religion, environmentalism, and the search for extraterrestrial intelligence. The first is Timothy Ferris's *Rolling Stone* conversation of 1973, which helped make Sagan a public figure, and the last is Joel Achenbach's May 30, 1996, *Washington Post* piece "The Final Frontier" when Sagan was undergoing chemotherapy for the disease that killed him later that year. In between are interviews with such figures as Henry S.F. Cooper Jr., Charlie Rose, and Ira Flatow.

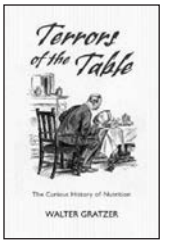


***Hardwired Behavior: What Neuroscience Reveals about Morality.* Laurence Tancredi.** Cambridge University Press, New York, 2005. 226 pp. $28.99 hardcover. Extraordinary advances in neuroscience have accelerated the breakdown of the idea that a dichotomy exists between brain and body. The focus is shifting from a strong emphasis on such things as free will and intentionality to recognition of the role of the physical brain on human thought and behavior. The author, a psychiatrist and lawyer (New York University School of Medicine), explores the findings of neuroscience research over the past few decades and their possible effect on our understanding of humankind's moral precepts.



***The Indescribable Phenomenon: The Life and Mysteries of Anna Eva Fay.* Barry H. Wiley.** Hermetic Press, Inc., Seattle, Washington, 2005. 442 pp. $65 hardcover. Barry H. Wiley spent twenty-eight years researching the bizarre and fascinating life of Anna Eva Fay. In the 1850s, belief in Spiritualism was climbing, and little Anna Eva Fay was made to believe she was gifted with mediumistic powers. Shepherded by a seedy, well-connected medium, Anna Eva Fay traveled the United States and Europe on a mind-reading tour. She embraced Spiritualism until interest began to wane, but not until her "supremacy in revealing the hidden unknown" allowed her face to adorn cigar labels and beautifully crafted posters. She carried her title as the "High Priestess of Mysticism" with her to vaudeville, the dramatic stage, and later into publishing. The reader is taken on a twisty path of parlor- room tricks, unbelievable scams, early twentieth century sensuality, and the seemingly endless exploits of a lying, risqué, brave, romantic, rather modern woman.

***God Created the Integers: The Mathematical Breakthroughs That Changed History.* Edited and with commentary by Stephen Hawking.** Running Press Book Publishers, Philadelphia, 2005. 1,200 pp. $29.95 hardcover. The famous physicist Stephen Hawking here explores the masterpieces of mathematics: thirty-one landmark results spanning 2,500 years and representing seventeen mathematicians. Each chapter begins with a biography of a featured mathematician, explains the significance of the result, and follows with the full proof of the work, reproduced from the original publication.



***Terrors of the Table: The Curious History of Nutrition.* Walter Gratzer.** Oxford University Press, New York, 2005. 304 pp. $30 hardcover. Walter Gratzer, a biophysicist at King's College London, has written a dry-witted and smart compendium on one of our most basic needs: sustenance. Gratzer deftly explores the history and science of nutrition from classical to modern times, taking on complex issues, such as the world's continuing struggle with malnutrition, as well as the comically grave—opium syrup for babies? Scientific pioneers, charlatans, a spy, fringe dieters, and hoaxers galore all fit in to nutrition's colorful history. Gratzer does a fine job of navigating the world of food, diet, and nutritional science, without forcing a forkful of his own "advice" down your throat. Widely researched, Gratzer covers myriad topics such as faddist nutrition ideologies, economical diet problems, the science behind our digestive system, and the never-ending search for the "flawless diet." Eight pages of photos, vintage posters, and advertisements, as well as a hard science index, are included.

—Kendrick Frazier and Kathryn Landon

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The Wrong Question

RALPH ESTLING

A person from Porlock, which is a few miles north of here, dropped by for a chat the other day and to ask what I thought the purpose of life was. I told him this is the wrong question and the most important thing for us to learn is to ask the right questions.

What are wrong questions? Things like, Why are we here? What is the purpose of life? What is the meaning of existence? They're wrong because their premise is wrong, they are content-free, pointless, without context, ego-based, human-oriented, not even trivial, just wrong. They are the queries the mighty philosophers Vroomfondel and Majikthise put to Deep Thought and which Oolon Colluphid pontificated on. They are questions that pretend to be about Life, the Universe, and Everything, but are really only about ourselves and our little angsts.

Right questions embody two factors: truth and importance, and not their relativist, postmodern counterfeits but their absolute, external, intrinsic qualities. When we remember that man is not the measure of all things but only the discoverer of a few, that reality is not a figment of our consciousness or a creation of our knowledge of the measurements of things but exists outside us and beyond us and our task is to find as much about reality as we possibly can in what time we have, and therefore we must not waste our precious, diminishing time with the wrong questions, then and only then we may start to get somewhere.

Postmodern philosophers of science and relativists, those who believe there is no such thing as objective truth, rarely get anywhere because they rarely ask the right questions, rarely even knowing what the right questions happen to be. This is because postmodern philosophers of science are, for the most part, postmodern philosophers first, and scientists not at all. They are interested in language, which is fine, as far as it goes, but in the physical sciences language has only a limited function and so mathematics is employed instead as the main means of attempting explanation and description—not always, let it be said, very successfully. But very few postmodernists have any grasp of mathematics beyond algebra and plane geometry, if that. The result is that they are continually condemning scientific explanation as inadequate, when what is inadequate is their understanding of these explanations and what "scientific explanation" means.

Postmodern philosophies are to Thought what Sex is to Love. There is no necessary deep connection between what philosophers do and thinking, and we had better not confuse words with things to the extent that the things eventually disappear and only the words are left, empty of substance, like deflated barrage balloons. It never is and never was a case of "I think, therefore I am" but "I philosophize, therefore I convince myself, and try to convince others, that what I philosophize over is hugely significant, original, and—let's not beat about the bush—brilliant." It is a childish conceit that no truly adult mind would waste its time over. Adult minds have more pressing things to get on with. In an age rich with the laying waste of the planet, rich with poverty and greed, injustices of all kinds, irrationality, lies, fanaticism, terrorism, and fear, do we need the obscurantism and humbug of the postmodernists to smother the obvious with mental fog and linguistic chaos? Do ursine megafauna defecate in sylvan environs?

Scientific explanation is almost always a tentative thing. It forgoes eternity. One of the reasons I like science is this lack of certainty. It has its dogmas, but most of the dogmas have their critics. Dogma and doubts are generally (if not quite always) both argued intelligently, and this lends a particular enchantment. It means that rank amateurs like me have to do a lot of fence-sitting. Fence-sitting doesn't appeal to most postmodern philosophers of science and other relativists. One would think that relativists would all be in favor of sitting on fences, but they aren't, not one little bit. This is because they are very convinced about their relativism and the absoluteness of its underpinning the nature of things. Fence-sitting requires, besides tough buttocks, an open mind (well, relatively open) and a curiosity that certainty and conviction can never have. It also requires some acquaintance with the facts.

Ask a postmodernist, a relativist, one who's complaining about how badly physicists do their job, to tell you all he knows about Lagrangians or action integrals. There'll be a period of silence, no bad thing in itself, but hardly encouraging. The physicist Richard Feynman once remarked that philosophy of science is about as useful to scientists as

Ralph Estling writes from Ilminster, Somerset, England.

ornithology is to birds. We expect experts on Chinese literature to have a good grounding in Chinese, but we are less demanding with some of our philosophical experts on science. Truth is for the strong minds and strong stomachs. If we haven't these then perhaps it would be best to stick to the wrong questions.

Asking right questions is hard. It means accepting the fact that we are not the center of the Universe, the goal of Existence, the Purpose of God's Great Plan, His First Priority and His Last Creation, but only something somewhere out on the periphery, off in the boondocks. It forces us to the Dante-esque conclusion that we must abandon all false hope, all pretense, as we pass under reality's iron gates. It is awfully cold-blooded and self-mortifying, having to leave all those gratifying wrong questions, with their wrong assumptions that bestowed such reassuring delusions and life-enhancing lies. (And what is madness but believing our own lies.) If it is a philosophy at all it is not a philosophy that rests lightly on the mind, for it marks childhood's end, the end of cosmic coziness, and the beginning of—what?—Bertrand Russell's "unyielding despair," existential angst, descent into the belly of the whale, weekly visits to the psychiatrist? Stuff happens. We live and learn. Well, we live.

And for what purpose, if I may ask that question? For the truth. For what is. Is the truth worth it, really worth it? Can we manage with only what is? Now we are making a start at asking the right question. If we answer yes, the truth is worth it, we can go on with the right question and see where it takes us.

Sometimes it doesn't take us all that far. I recently watched a two-hour-long television program called "Who Wrote the Bible?," at the end of which the presenter decided it wasn't written by God but by lots of different people, many of whom disagreed with each other, not to mention historical fact. He'd put 1 and 1 together and came up with 2. Not exactly a fascinating result, but better than putting 1 and 1 together and coming up with $17^{2}/_{3}$.

And sometimes the truth takes us deep into sorrow, to where we would gladly reject the truth, if we could only believe in what the second-hand-thought salesmen tell us so earnestly.

I wanted to discuss this with my old acquaintance, the person from Porlock. But he wasn't interested. □

FOLLOW-UP

Research Scandals: A Letter to the President of Columbia University

BRUCE FLAMM

The following letter was sent by Bruce Flamm, M.D., to Lee Bollinger, President of Columbia University, in December. In it, Flamm draws comparisons between two recent research scandals. One is the much-publicized case of acknowledged scientific fraud in which South Korea researcher Hwang Woo-suk, who had become a national hero in his home country for apparently groundbreaking research papers in cloning and stem cell research, resigned all his positions in disgrace in December after investigations by a panel at Seoul National University showed stem cell lines Hwang said he created didn't even exist. It said he had faked the research on all eleven stem cell lines he had claimed to create. Science *magazine quickly said it would retract the key paper. The other scandal is the one surrounding the highly publicized paper "Does prayer influence the success of in vitro fertilization-embryo transfer?" published in the* Journal of Reproductive Medicine *by K.Y. Cha, D.P. Wirth, and R.A. Lobo (46:781–787) in 2001. It was the subject of a detailed critical exposé by Flamm, published in the* Scientific Review of Alternative Medicine *and summarized in his article "The Columbia University 'Miracle,' Study: Flawed and Fraud" (*SKEPTICAL INQUIRER, *September/October 2004) and updated in his Follow-up article "The Bizarre Columbia University 'Miracle,' Saga Continues," (*SKEPTICAL INQUIRER, *March/April 2005). Following Flamm's December letter to Bollinger (copied to the editor-in-chief of the* Journal of Reproductive Medicine, *neither of whom has yet responded), we publish*

his short commentary about the situation.

—Kendrick Frazier, Editor

Re: Research Scandal at Columbia University:

Dear Professor Bollinger:

The University of Pittsburgh and the prestigious journal *Science* have just demonstrated how a research scandal should be handled. Within a few months after questions about its validity were first raised, the publication by Schatten, Hwang, et. al. is being investigated and will almost certainly soon be retracted. In contrast, several years have elapsed since the study by Cha, Wirth & Lobo was exposed as nonsensical and yet it has still not been retracted and the scandal surrounding it has not been resolved.

There are striking parallels between the two flawed and possibly fraudulent research studies. In both cases the research was conducted in South Korea. In both cases the senior author was a prestigious professor at a U.S. University. In both cases the senior author asked to have his name removed from the publication when the validity of the research was questioned. Both cases involved human embryos and both seemed to have demonstrated major scientific breakthroughs.

Although the scandals were similar, the way they were handled could not have been more different. One scientific journal demonstrated how a scandal should be properly managed while the other steadfastly attempted to cover up the scandal, but failed. The University of Pittsburgh began an immediate investigation, Columbia University stalled for years and then attempted to sweep the scandal under a rug. *Science* immediately responded to questions about the Schatten et al. study and immediately took action. In contrast, the *Journal of Reproductive Medicine* refused to answer calls or e-mails about Cha, Wirth, Lobo publication until author Wirth was sent to federal prison for fraud and the scandal reached the pages of *Time* magazine.

When Prof. Gerald Schatten attempted to remove his name from his flawed research, *Science* warned him that he might soon find himself on the receiving end of an inquiry. *Science* told Schatten in an e-mail that an author who earlier showed complete confidence in the assertions of the paper cannot later ask to have his name taken off it, nor did the journal have a mechanism whereby this can be done. The journal said that the fact that an author now admits to difficulties in proving the authenticity of his original assertions could be understood as meaning that he had been misleading readers and that he could be subject to an investigation for misconduct. Rather then just allowing Schatten to walk away from the scandal, *Science* demanded answers to questions about the paper. In contrast, the *Journal of Reproductive Medicine* simply erased the senior author's name form the flawed research. Columbia University may have facilitated this action in an effort to distance the university from the scandal. Later, Columbia demanded that the *JRM* remove from the paper all links to the university.

As you know, the Cha, Wirth, Lobo study claimed that supernatural powers had doubled the success rate of In-Vitro fertility treatments conducted in Korea. Prayers from the United States and Australia supposedly had dramatic effects on patients in Korea. However, the author who supposedly set up the prayer groups was later arrested and found to be a conman with a 20-year history of criminal fraud.

Sadly, four years after its publication, the "Columbia Miracle Study" has not been retracted and is still being cited in PubMed as an apparently valid scientific study. Professor Bollinger, I request that you take appropriate action to correct this appalling situation. There were approximately 20 authors of the Hwang et al. study, thus the retraction process will be complicated.

In contrast, there were only three authors of the Cha, Wirth, Lobo study. Since Mr. Wirth is now in federal prison for criminal fraud it is likely that the *JRM* will not require his consent for retraction. Dr. Cha was a visiting professor at Columbia when the absurd paper was published and Dr. Lobo was a department chairman at that time and is still a professor at Columbia. I again urge you to take actions that will lead to the retraction of this ridiculous and possibly fraudulent publication. It is never too late to do the right thing.

Sincerely,
Bruce L. Flamm, MD

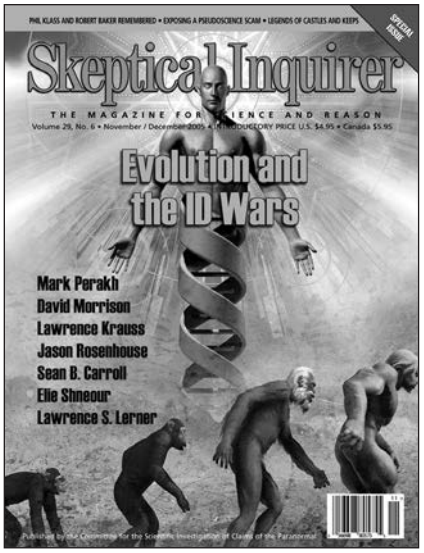
cc: Lawrence Devoe, Editor-in-Chief,
Journal of Reproductive Medicine

Further Comments by Bruce L. Flamm

The Cha, Wirth, Lobo study, commonly known as the Columbia "miracle" study, is an ongoing embarrassment for science. The absurd paper claimed apparently supernatural results that defied the laws of physics and thus should never have been published in a peer-reviewed medical journal. A five-minute Google search would have alerted editors to the fact that co-author Daniel Wirth had a long history of publishing bizarre papers in paranormal journals. But no one took this simple step, and the nonsensical study somehow slipped through peer-review systems at both Columbia University and the *Journal of Reproductive Medicine* (*JRM*). From here the story only gets worse. After publication, both Columbia and the *JRM* steadfastly refused to respond to readers' concerns that the research was obviously flawed and possibly fabricated. Incomprehensibly, even after Wirth, the man who designed and allegedly conducted the study, was subsequently convicted of criminal fraud, both Columbia University and the *JRM* refused to take appropriate action. For several years scientists and physicians, including myself, have pleaded with officials at Columbia University and editors at the *JRM* to retract the hopelessly flawed and probably fraudulent publication. They have steadfastly refused to do so, apparently hoping that the scandal would just go away. The disgraced authors along with Dr. Devoe at the *JRM* and officials at Columbia University including Medical School Dean Gerald Fischbach and President Lee Bollinger should all hang their heads in shame. What a horrible example they have set for scientists and physicians of the future.

—Bruce Flamm

Bruce Flamm wrote "The Columbia University 'Miracle' Study: Flawed and Fraud," in the September/October 2004 issue of SKEPTICAL INQUIRER. □



Evolution and the ID Wars: Readers Respond

Our special issue on Evolution and the ID Wars (November/December 2005) brought more letters than any other issue this past year. And they are still coming. Here is just a sampling. We thank all who wrote.

—Editor

Evolution and the ID Wars

Very many thanks for the core articles on "Evolution and the ID Wars" in the November/December 2005 issue and especially for Sean Carroll's brilliant piece. Who would be better fitted than he to write the definitive high-school biology text?

It cannot be too firmly stressed that the ID approach is dishonest science. If there are phenomena or observations that a theory appears—repeat, *appears*—to some people to be unable to explain, then there are three possibilities, not two:

1. Supernatural intervention has occurred.
2. There is already available a naturalistic account (of the evolution of the various forms of the eye from photosensitive patches of skin, for example).
3. A naturalistic explanation exists that we haven't yet arrived at, either because it's beyond our present horizon or perhaps simply because no one has yet done the key experiment or had the necessary flash of intuition.

The ID boys (the ones jumping up and down about this all seem to be male) choose deliberately to ignore the second possibility and define the third out of existence by describing the complexity as irreducible.

I suggest there is a case for telling schoolchildren about ID, provided that it is introduced only as a topic in a course on scientific thought and scientific methods—as an example of poor science, along with N-rays, anomalous water, cold fusion, and the like. If local school boards insist that it be taught in a main biology course, is there any reason why it should not be taught critically?

Timothy Weakley
Dundee
Scotland

While reading the articles on "Evolution and the ID Wars," I wondered what many churches' standpoints on evolution will be in a few hundred years. Churches wishing to survive bear the imminent responsibility to accept change and celebrate the discoveries of man. The response I have seen from those churches that are clinging firmly to the orthodox story of creation has been sort of "Oh, crap." Yet I fail to understand why accepting evolution would necessarily change anything. The acceptance of gravity was hardly a plague on religion.

Churches must realize A) the symbolic nature of the Bible and B) the not-so-negative implications of recognizing evolution. Why can't someone believe that humans evolved from apes and still believe in Jesus' teachings? How about saying that over the last few billion or so years, the world has existed and it was God's will to strike the final blow—creation of modern man from his predecessor? That idea would even line up quite well with Genesis. Say that the biblical sixth day really marks the point 150,000 years ago when God changed that one extra peptide, thus changing that extra protein and ultimately changing that extra gene, creating what we know today as man. Acceptance of that story would be a jump for biblical literalists, but might be the savior of Christianity.

Erik Nylen
Iowa City, Iowa

Although I hold advanced degrees in science, I was a staunch supporter of evolution even before I entered a university. After reading your issue on evolution vs. nonsense, I was so discouraged and disappointed in the judgement of my fellow Americans that I was almost glad my term of existence will be expiring in a few years.

However, I'm sure your seemingly Sisyphian endeavors will be one day greatly valued in retrospect. The world today is certainly a better place in which to live than it was 500 years ago, and a small but determined minority using science and reason made it that way.

Lloyd L. Medsker
Hannover
Germany

I enjoyed reading the issue immensely, but I'm left with one question that does not seem to have been addressed.

If ID is a reality, how does the abstract "design" makes its way to the physical reality? What hand takes the design and imposes it upon the cellular proteins and other "irreduceably complex" structures? I suppose one could say that it is all encoded in the DNA, but that simply pushes the problem back one step. What then transfers the "design" to the DNA code? If we were talking about automobiles or computers, the answer would be easy. There are factories, where live people and real machines do the work, but where are such factories for the cell? Short of some kind of cosmic laboratory à la *Jurassic Park*, I am at a loss.

Kenneth R. Morgareidge
Denver, Colorado

The outstanding impression I have of those who champion antievolution is that they are being dishonest—factually and intellectually. We should be highlighting this. While arguments based on irreducibility and complexity might have merit and be debatable within academic circles, the simple demonstration of the big lies and the little lies might go much further in countering antievolution influence with bureaucrats, school boards, and others in the public milieu.

Peter Tait
Alice Springs,
Northern Territory
Australia

As a former fundamentalist, I can tell you that evolution is a threat to the very existence of fundamentalism. Everything comes down to the recognized authority of what they teach. For the fundamentalists, it is the Bible and the Bible alone—every word is taken literally and as historically accurate. Catholics,

on the other hand, put the official teachings of the Church on an equal footing with the Bible, expecting each to interpret the other. Everything a fundamentalist believes rests on the belief that the Bible is inerrant and literally true. So if any part is proven wrong, the accuracy and authority of the entire Bible is in question and all of their beliefs are in jeopardy, thus threatening their existence as a legitimate system of belief. The Catholic Church, on the other hand, is a survivor. It has dual authorities and is able to change with the times. It is not threatened (and shouldn't be) by evolution and understands that the story of creation in Genesis and the flood are symbolic stories, not to be taken literally, and even accepts evolution to some extent.

Fundamentalists, by their own not-so-intelligent design, cannot be flexible in the same way. So when evolution (or anything else) inadvertently threatens a major portion of scripture, they desperately kick back in defense. Many scientists try to convince them that they have nothing to fear from knowledge and science but fail to understand the fundamentalists' impossible situation. Intelligent Design is the last stand for many Christian churches, and only the nonfundamentalists will survive in the end.

Michael Fiedler
Lincoln, Nebraska

As always, the latest issue of the SKEPTICAL INQUIRER was a delight to read. However, I am still troubled by the attempt to have science and religion coexist. Clearly, science and a young-Earth creation cannot both be correct and hence are irreconcilable. Much as we skeptics wish to gloss over that fact, obviously, it accounts for the intensity of the creationists "war" on evolution—their core beliefs are being threatened.

I fail to see how science and religion can ever be reconciled. One is built on a philosophy of doubt, data, hypothesis, confirmation of hypothesis, rejection of previously held beliefs, etc. The other is built on blind faith in a book of your choice (despite not only scientific evidence to the contrary but a large number of internal contradictions), believing what you are told, magic, superstition, etc. I expect that religious people understand this much more than scientists and skeptics do, and it greatly dismays me when we take the easy way out, "non-overlapping magisteria," rather than confront the issue head on.

Richard Seibel
Pompton Lakes,
New Jersey

During my first semester of graduate school, I temporarily returned to dormitory living, where I shared a room with an unusually impressionable undergraduate. His major as yet undecided, my roommate became vicariously infatuated with science while hanging out with me in the physiology lab. Soon, he had purchased a white lab coat, in which he paraded about campus, hoping to impress the unsuspecting with his newfound scientific airs. When I listen to advocates of Intelligent Design, I am often reminded of that roommate.

Until Intelligent Design becomes a sustainable theory, firmly based on a meaningful framework of tested hypotheses, it will remain little more than the sad spectacle of creationism wistfully parading about in a new lab coat.

Chris Mott
Mount Vernon, Washington

Proposals to include Intelligent Design in school curricula, especially to complement evolution, can appear to have a superficial fairness, and arguments against the inclusion can be difficult to present, especially to an audience predisposed to believe otherwise.

A more effective response, it seems to me, could be to concede immediately that other religions around the world teach many different versions of how the universe and human life came to be. In view of this, we might propose, we have no fundamental opposition to students in our schools being introduced to the varying beliefs about this that are held in other cultures, not only around the globe, but even within our own country.

Studying these creation myths—*widely differing* creation myths—held by other people just like ourselves, will, we can argue in full sincerity, give our children a needed understanding of the diversity of beliefs in our increasingly globalized world. These beliefs, however, quite evidently belong in the history or social-science curricula, not with the physical sciences, which are demonstrably uniform around the world.

A proposal like this, one can be pretty sure, will not be happily received by those who support ID, with the term "creation myth" being especially unwelcome. But this approach, which appears to be, and in fact, is, a quite legitimate one, puts them on the defensive. With globalization in the headlines daily, should our children not learn something about the widely differing beliefs of people with whom they will have to work, trade, and, hopefully, live in peace?

I suggest we'd be better served in these debates by putting forth a positive and genuinely reasonable counterproposal and forcing others to be on the defensive against it, rather than having to argue against a purportedly balanced proposition from the other side. Simply putting such a proposal forward, noting a few of the major creation myths in the process, will serve an important educational purpose—and probably receive attention in the news coverage of the resulting discussion.

Anthony E. Siegman
McMurtry Professor of Engineering Emeritus
Stanford University
Stanford, California

In reference to the excellent special issue on "Evolution and the ID Wars." I often told my students that I did not believe in evolution. After a pregnant pause to allow students to really perk up in happy anticipation of what they thought would surely follow, I had to disappoint them by freeing them to contemplate my meaning when I followed that declaration by saying that I also did not believe in photosynthesis nor that the sky is blue or Earth an oblate spheroid. These are facts that one is obliged to accept, given the weight of evidence available. One must accept evolution given the weight of evidence. People can be asked if they believe in creationism, but they ought to be asked if they *accept the fact of evolution.*

Asking, do you believe in evolution? makes as much sense as asking me if I believe that I will die. I know that I will.

Richard Haas
Professor Emeritus, Biology
California State University, Fresno
Fresno, California

Only a Theory?

Excellent issue (November/December 2005) on "Evolution and the ID Wars." David Morrison (always the great teacher) was so incisive with his cogent arguments for simply omitting the word *theory* from any references to evolution. Even scientists frequently use the word meaning "a mere idea," making it very difficult to make the case with students for its "scientific" meaning. In addition, evolution can mean the general phenomenon (descent with modification) or it can refer to the Darwinian mechanism of natural selec-

tion, and it's not always clear which the word *theory* is referring to, resulting in even more confusion.

If we totally avoid using *theory* in this context (in spite of text references), students will inevitably raise questions (often challenges) about the "theory of evolution," so teachers must be prepared to offer a brief yet acceptable explanation.

Morrison's other suggestion (using values, health, and competition elements) for avoiding defensiveness, especially with parents, is also a good idea. In fact, this could even be adapted for classroom discussions. This is a good reason for teachers to discuss logical fallacies and pseudosciences, along with the reasons why supernatural forces cannot be part of scientific explanations.

All of this is best done in a "nature of science" unit early in the course, before the emotion-raising subject of evolution is presented.

Larry Flammer
ENSIweb
San Jose, California

Many thanks for publishing David Morrison's fine article on the need to reframe the evolution/ID "debate" (such as it is). Not only do we need to stop referring to evolution as a "theory"—which, as Morrison points out, is a term not generally understood in its scientific context by the general public—we need to start prefacing talk of Intelligent Design with something to indicate its lack of any relevant scientific status. We could start calling it the "theory" of Intelligent Design, but that puts it on an equal semantic footing with evolution. I'd like to see it referred to for what it is: the "notion" of Intelligent Design.

Dave Gardner
Seattle, Washington

In agreeing with David Morrison's excellent article on the confrontations between evolutionists and those who espouse religion-based "alternatives" ("Only a Theory?" November/December 2005), I offer some comments that might simplify or help clarify some of the points in dispute.

Einstein's and Newton's theories (and those of others) resulted from attempts to understand observations and to permit predictions of consequences of changing circumstances. Those observations are seldom in dispute. Newton's formulae and theories can be contested, but apples *do* fall in a precisely predictable manner and satellites *do* follow precisely calculable orbits, regardless of any objections to theories that permit the predictions. Einstein's theories can also be questioned, but even within the limitations of current technology, light *can* be seen to bend in a gravitational field to the extent he predicted and clocks (and other cyclic phenomena) *do* slow to a precisely predictable degree.

Similarly, plants and animals *do* evolve and adapt to their environments at varying rates; this is easily confirmable, whether or not one accepts Darwin's explanatory theories.

Gerald L. Wiles
Bradford, Ohio

David Morrison correctly observes that most people do not understand what *theory* means when it is used in a scientific context. He also observes that starting a discussion about evolution by having to convince people that the word *theory* in "theory of evolution" doesn't mean what they think it does is a trap. His suggestion is to skirt the trap by avoiding *theory* completely. Just talk about evolution. That would work if our opponents would let us talk that way, but they won't.

Instead of educating people on the meaning of words they understand perfectly well or ducking the issue, let's totally reframe the discussion. Let's give the theory of evolution, the theory of relativity, and other extraordinarily well-established theories a promotion from theories to laws. The National Academy of Sciences, together with other leading scientific organizations from around the world, could soberly declare that the evidence has become so strong that Darwin's laws of evolution, Einstein's laws of relativity, and perhaps several other theories have taken their rightful places alongside Newton's laws of motion and the laws of thermodynamics.

Of course, formally declaring such theories to be laws extends the traditional definition of *natural law*, particularly in the case of complex theories such as Darwin's. But to me, at least, the extension seems entirely reasonable, and it certainly reframes the discussion in a useful way.

David Ehnebuske
Holmes, New York

Morrison makes the pertinent observation that the evolution debate has been publicly dominated by the challengers, because the theory of evolution has been "framed"! Hence, the layman's media-derived understanding has been limited to the ID and young-Earth-creationist models vying with a "wild guess" caricature of Darwin's hypothesis. That being the case, why don't the defenders of scientific evolution take the hint and stop referring to the "*theory* of evolution." That term has been co-opted in slang like the formerly nonsexual term *gay*. Instead, they could refer to the "*law* of evolution." That might get more respect from the open-minded layman.

Some scientists may not consider the theory of evolution to be mathematical enough to be called a law. But even though we still don't agree on what gravity is essentially, and there are still some quantum-gravity mysteries, we have no scruples about referring to Newton's equations as laws.

As a layman myself, I don't see why evolutionary cause-effect relationships can't be (at least in theory—pun intended) mathematically formalized. Perhaps some latter-day Darwinstein will come up with a T-shirt equation, something like $E=CS^{!}$, where *C* stands for change, *S* for selection, and the superscript *!* refers to the principle of "emergence" of novel properties in a new species.

In any case, until some fatal flaws are found in the theory, I will refer to the observed-tendency-for-all-organisms-to-change-adaptively-over-time as the "law of evolution." It's not just a good guess; it's the law!

John Earwood
johne84570@mindspring.com

No one has written more eloquently, thoroughly, and conclusively on the subject of "Evolution and the ID Wars" than Stephen Jay Gould in his little book, *Rocks of Ages—Science and Religion in the Fullness of Life* (1999).

ID represents, after all, the (veiled) religious side of the dichotomy expressed in this SI series of articles. And while one writer acknowledged Gould's contribution by reference to his last book, *The Structure of Evolutionary Theory* (2002), most contributors concentrated on the dichotomy and the debate rather than on Gould's exquisite resolution to the problem—his "NOMA" principle of non-overlapping magisteria. Morrison comes closest by conceding that "many people . . . would be more receptive to evolutionary concepts if we refrained from an in-your-face challenge to their convictions about human origins or the nature of the human soul" and "There is no reason to make this a debate about religion. . . . But we must understand where our audience is coming from and find ways to present the science in a

non-confrontational and accessible way."

As we all ponder what is in reality a fictitious "war" between apples and oranges, it would behoove us to take heed of Gould's reasoned abhorrence of dichotomies and apply his NOMA principle. Some elucidating references to *Rocks of Ages* would have been helpful in avoiding further needless declarations of war.

Curt Claus
Gordonsville, Virginia

I enjoy the SKEPTICAL INQUIRER, but whenever I read its articles on creationism, I wonder what science has to do with this? The Harris Poll tells us that belief in creationism, is up 8 percent from 1994 to 54 percent among *adults*. Creationism is throttling science in the court of public opinion, while CSICOP and the National Center for Science Education, which I also support, twirl in ever-narrowing circles of Kolmogorov complexity.

Creationism isn't just another Bigfoot or flying saucer. It is the Christian Right's reason for being. What can those who support a science-based dialogue with creationists ever expect to gain? Converts? They're already outconverting you a thousand to one!

Thank you for David Morrison's article, the first in SI to address the time-honored public-relations concept of framing the message, commonly known as *spin*. This is the closest the magazine has come to explaining why creationism keeps winning. Just look at what a great "framing" job creationists have done by getting their critics to call it "Intelligent Design." Getting your opponent to adopt your terminology may be so-so science, but it is terrific PR.

The PR vacuum among creationism's critics works hand-in-hand with the notion that they must be vigilant not to "offend" creationists. Sorry, the deadline for creationists to move their faith to a higher ground is already over one hundred years past due. Raise the trumpets against those who would foist junk science on children; sound the bells against those who would sacrifice America's scientific leadership for religious ideology; but please, please, please stop trying to reason with them.

And speaking of the benefits of irrationality, why, in an entire issue devoted to creationism, was there no mention of the Church of Flying Spaghetti Monster (www.flyingspaghettimonster.com)? When it comes to framing the issues, His Holy Spaghettiness not only knows what's what but has galvanized more public opinion than CSICOP, NCSE and all the pro-evolution groups in the world combined.

Joseph Fusco
San Francisco, California

David Morrison explains well the difference between a scientific theory and those of debatable disciplines such as economics and political science. He also points out that the ID believers can easily influence school boards and legislators. This reflects the academic weaknesses of our schools, since those people have all presumably graduated from them and probably gone to college.

We as a nation obviously need to do something about the failure of our schools, a fact long known from comparisons with those of other nations. Let's return to basics and ask some questions. 1. Does it make sense to require everybody to sit in school for twelve years? 2. What is meant by sixth-grade reading level or any other level? 3. Why do polls on knowledge of American history, general science, and math show such pathetic results? 4. Why is there so much pressure to go to college? 5. Why have colleges dumbed down academic subjects until hardly anything is left in some cases?

Having retired from a teaching career at the college and university level, and being eighty-three now, I have witnessed a steady decline in learning over the years, although I assume that there must be exceptional institutions somewhere. What can be done? Maybe somebody has the answers. If we humanists want a cause to promote, how about schools?

Harvey Dunkle
San Diego, California

Complexity vs. Artifice

Arguments for Intelligent Design are similar to the "Argument from Design" for the existence of God, advanced by William Paley in *Natural Theology* (1802). Paley's book begins: "In crossing a heath, suppose I pitched my foot against a stone, and were asked how the stone came to be there; I might possibly answer, that, for any thing I knew to the contrary, it had lain there for ever. . . . But suppose I had found a watch upon the ground. . . . [Its precision and intricacy would force me to conclude] that the watch must have had a maker: that there must have existed, at some time, and at some place or other, an artificer or artificers. . . ."

Paley was greatly admired by Charles Darwin for the lucidity of his arguments, and it is no criticism of him that he had no inkling of Darwin's theory, decades before Darwin thought of it. But he made the error that Mark Perakh (November/December 2005) observes in the work of ID proponents. As the philosopher Antony Flew has pointed out, Paley confused complexity with artifice. If he had pitched his foot against a rectangular brick, the very simplicity of its shape would have forced him to conclude that the brick must have had a maker. (And if he had snagged his breeches on a gorse bush, he would probably have thought it had grown there.)

Donald Rooum
London
England

After reading Mark Perakh's article on Irreducible Complexity (IC) and Unintelligent Design (UD) in your November/December 2005 issue, I am initially inclined to applaud it as being probably one of the hardest-hitting and generally well-written pieces on the whole evolution/creationism "controversy" I have ever read. Unfortunately, however, there is a flaw in his "IC implies UD" reasoning.

Behe's concept of IC, the target of Perakh's critique, is based on the improbability of incrementally less complex forms being sufficiently functional to be retained by an evolutionary process driven by natural selection such that they could lead to more complex functional forms. Accordingly, it is essentially a variation of the old argument: "half an eye is of no benefit and may even be a liability to the organism." That is, it is focused on the supposed difficulty with intermediary and probably nonfunctional forms surviving long enough and consistently enough to serve as springboards to the more complex and functional forms we observe as "finished" species today.

By contrast, the second half of Perakh's argument depends upon the apparent illogic of designing a complex system that would be rendered nonfunctional/nonviable by the failure of just one of its many components. (Genes?) This point misses the target, because Behe's argument does not imply or require that any components of the "completed complex species" are reasonably likely to fail once they have been successfully assembled by the hypothesized intelligent designer, nor has any evidence of this organismic vulnerability to single component failure despite initial genetic integrity been offered by Perakh.

Presumably then, Behe would answer Perakh by pointing to the "fact" that complex species do not very often fail or become nonviable due to the failure of just one of their many components, once they have been successfully assembled according to the "intelligently designed blueprint." Moreover, Behe would no doubt interpret this to be further support for his position rather than a strike against it.

Behe's argument is indeed fallacious, but Perakh's counterargument does not demonstrate that, because it is either inapposite or incomplete.

Alan Dietrich
Qualicum Beach,
British Columbia
Canada

No Separate Truth

Lawrence Krauss's views on truth ("The Pope and I," November/December 2005) may be politically expedient, but they are detrimental to an understanding of science. The idea that scientists do not have "exclusive ownership on truth" implies that a separate type of truth applies to religious statements. That notion is unacceptable.

The concept of "truth" is the same for all disciplines. A statement may be logically true or false in relation to other statements or within itself. If a synthetic statement is meaningful and not analytic, then truth is inferred from evidence.

Divine revelation and religious pronouncements are not standards of truth. Statements from religious writings or prophets must be submitted to the same criteria of truth as other statements. Claims of the salutary benefits of religion (e.g., those of intercessory prayer) must be evaluated empirically. Religious prognostications are not logically different from predictions derived from other sources. Moral maxims (e.g., "adultery is wrong") are meaningful rules for behavior but are not verifiable. And biblical accounts of the world are subject to the same standards of truth as scientific explanations.

It is a mistake to take a conciliatory approach to religion if conciliation means compromising the meaning of truth. Religious statements record beliefs, which are not true unless verified according to the standards that determine the truth of all statements. Tolerance for a diversity of beliefs does not extend to mislabeling those beliefs as truth.

L. Charles Ward
Tuscaloosa, Alabama

Left, Right, Wrong!

It is pretty clear that the Intelligent Designer went wrong with the latest cover of the SKEPTICAL INQUIRER. The DNA molecule should be a right-handed helix but is drawn as a left-handed helix.

Jan A. Witkowski
Executive Director,
Banbury Center, Cold Spring Harbor Laboratory
Cold Spring Harbor, New York

The Editor responds:

Several readers brought this to our attention. The cover painting was existing artwork that we purchased because it seemed to us to powerfully symbolize some of the themes of the evolution/ID wars controversy. I think it did that very well. It certainly wasn't our intention, though, to promulgate an inaccuracy about the "handedness" of DNA.

In Defense of Druyan

Three letters in the November/December 2005 issue were highly critical of Ann Druyan's comments about the Iraq war; just a few sentences in her brief commentary, "The Great Turning Away," July/August 2005. These brought a storm of reaction from readers. Almost all defended Druyan and SI. For space reasons, we can give only a sampling of the responses here. For our part, I will point out two things: SI authors have considerable latitude in expression in our pages, and although SI is not a journal of political opinion—thousands of other outlets are available for that—we nevertheless have a long tradition of bringing science, reason, and critical analysis to bear on important issues, and more than occasionally, that includes "political" matters. In this, our interest is not partisan but is to use science, reason, and rationality to illuminate.

—Kendrick Frazier, Editor

In the letters column of the November/December 2005 issue, three writers expressed shock at this statement by Ann Druyan: "Our President declares himself an instrument of God and with impunity makes illegal and baseless unprovoked war." John Putre, Harold Blackman, and Sam Brown call this a rant, call this editorializing, and call it baseless.

If only it were those things! But alas, almost every word of it can be massively documented. Take for instance Bush's claim of divine authority. Putre, Blackman, and Brown may disbelieve that Bush would say something so arrogant, presumptuous, and indeed blasphemous—and I sympathize with their incredulity—but alas, he did. For documentation, look at this URL: www.bbc.co.uk/pressoffice/pressreleases/stories/2005/10_october/06/bush.shtml_.

Was the attack on Iraq unprovoked? That depends on what you call provocation; in particular, the question is whether the perception of provocation may be faith-based or must be reality-based. We now know that the WMDs were an illusion, as was any Saddam-Al Qaeda link. Worse still, we have now strong reason to suspect active deception by this administration. Note this URL: www.truthout.org/docs_2005/110705G.shtml_.

As for the war being baseless, none of the rationales offered to the American people during the run-up to war have worked out. Other rationales were in play. To discover them, please note this URL, put out by the Plan for the New American Century: www.newamericancentury.org/.

I grant that Bush's impunity is also an open question. It seems to be in poor condition now, and may get worse. I also grant that the illegality of the Iraq war is an open question, one which history, politics, and the Hague must ultimately decide. Please note this URL: http://en.wikipedia.org/wiki/War_of_aggression_.

Please note that I found the above URLs after only a few minutes' search; had I spent more time on it, no doubt I would have found more and better sources. In Bush's defense, Putre, Blackman, and Brown offer nothing but their "brain-numbing incredulity." But mere brain numbness is not skepticism; checking the facts is.

Nathaniel Hellerstein
San Francisco, California

The reactionary rants in the Letters to the Editor against Ann Druyan (November/December 2005) were enough to capsize the senses and make the brain evaporate in smoke. Skepticism is simply the method for assessing the merits of different truth claims—including those made by political factions and religious groups. Druyan was merely doing her job, superbly.

The implication—no, the dismissive, brusque assertion—that politics and religion have some privileged position that must be deferred to in these pages is moronic in the extreme: ideology and dogma are unfettered

by morality and ethics, and therefore demand the same level of critical analysis and the application of Euclidian logic as any other subject. In fact, more so. As James Hilly pointed out, "Because a monotheistic psychology must be dedicated to unity, its psychopathology is intolerance of difference." That grim intolerance was radiantly reflected in the letters column last issue, and must be redressed, most appropriately, in your magazine.

Ann Druyan is a true skeptic. Those who disparage her are moral ciphers who are ill-suited to be members of the Community of Reason.

John Carver
Chatsworth, California

Responsible science has always been compelled to occasionally exert itself within the domain of politics and public policy. In an era when nearly half the U.S. population does not know how long it takes Earth to go around the sun, there is a clear responsibility awaiting all working scientists, engineers, and conscientious adults. It is in that spirit that I applaud Ann Druyan for her articulate and heartfelt sentiments expressed in "The Great Turning Away." I am further grateful to SI for providing a respected forum through which her views could be shared. SI has never shied from confronting the practitioners of pseudoscientific methods and the effects they can have on the public at large.

Today, we happen to have a president who advocates "teaching the controversy"—a president who compels the American Geophysical Union to stand up and issue statements such as: "President Confuses Science and Belief, Puts Schoolchildren at Risk" (AGU Release No. 05-289, 2 Aug 05). When those placed in positions of high public office apply their acquired influence without the critical thinking it warrants, should SI avoid confronting them because it will be labeled by some as political ranting? Hogwash! Let the discussions go where they may—guided only by the principles and sound motives that are the cornerstones of SI. Good science respects consensus. Good science exercises process. Good science encourages reassessment—it does not stand as an edifice droning, "Stay the course." When our leadership delves into peddling fallacies that will affect the lives of 300 million Americans, it is reassuring to know that SI will take up the issues and apply the illumination that is so critically needed.

Paul Mohan
Novi, Michigan

Druyan bemoans the lack of skepticism in a public that uncritically accepts untruths about politics just as much as it does about science. Her opinion about the war is relevant to her thesis, and not at all out of place in her SI article. Even more important, it is based on a skeptical evaluation of the information emanating from all sides of the public debate.

Harold V. Blackman expresses "brain-numbing incredulity" with Druyan for also saying, "Our President declares himself an instrument of God." This is hardly an eyebrow raiser; Druyan is guilty of nothing more than stating the established fact that Bush has many times publicly asserted that God is his copilot. Here is just one quote, during a meeting with the Palestinian Prime Minister and Foreign Minister in 2003:

> I'm driven with a mission from God. God would tell me, "George, go and fight those terrorists in Afghanistan." And I did, and then God would tell me, "George, go and end the tyranny in Iraq." And I did. And now, again, I feel God's words coming to me, "Go get the Palestinians their state and get the Israelis their security, and get peace in the Middle East." And by God I'm gonna do it. (Reported on www.bbc.co.uk, 6 October 2005.)

Skepticism is by its nature liberal, insofar as scientific inquiry is ongoing and has no permanent status quo. I'm sure SI's editors would have preferred to keep apolitical their crusade for reason over ignorance.

But it is the Right in this country that has forced a political debate, by blatantly using religion as a political tool to cripple the teaching of science. When politics stand in the way of reason, those politics must be addressed. I haven't read any politically liberal remarks in SI that were not in the context of the political attack on science or that could be construed as merely gratuitous, much less characterized as "rants."

Jerry Engelbach
Brooklyn, New York

Several readers take issue with the robust skepticism toward Bush's Iraq war expressed on SI's pages. They claim that such skepticism is "political hyperbole" that exceeds bounds of "rational evaluation." Not so. Bush's war is based on lies, deceit, and falsehoods far worse than Geller's spoon bending or the charlatans of creationism whom SI routinely assails. Druyan's allusion to Bush's "illegal and baseless unprovoked war" is simple, rational fact.

Edward Mainland
Novato, California

Some of the letter writers accuse Druyan of "political hyperbole" and refer to her editorial as a "belch of rage." It is quite clear to me that her accuracy in describing the Bush administration has ruffled the faith-based ideologues among our skeptical brethren. But is not skepticism supposed to be about seeking and arguing for the truth?

On the one hand, science is the best objective tool we humans have for discerning the universe. On the other hand, religion and other forms of superstition are the antitheses of science, regardless of how congenial Carl Sagan was to religion. But as we all know, "true believers" do not care much about science or objective truth. All it takes for a believer to believe in crystals, angels, or gods is faith, and it has come to my attention that American politics is, to a large degree, faith-based as well.

Truth and critical thinking about the world in which we live should always remain the main objective of the SKEPTICAL INQUIRER. Otherwise, why bother?

Barry F. Seidman
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A Tribute to Philip J. Klass

The death of Philip J. Klass (November/December 2005) left me with the deep conviction that our nation lost one of our great journalists/authors. And since I knew Phil for well over a decade from my investigative work regarding UFO reports, I can testify that he was also a decent human being and one of our great science educators.

Upon discovering in the early 1970s that the UFO literature that was written from the believer perspective was very short on evidence and scientific explanation, I realized that the only reliable sources then available were the books of Donald Menzel and Philip Klass. Thus, it was the skeptics who proved to me that they did their homework, and I gained knowledge of the scientific process and standards.

I had begun to research preparation of a slide/tape presentation for use by the Mutual UFO Network, so that the public might be introduced to a careful, fair, and accurate account. After writing to Phil in late 1975, I received his letter in January 1976, in which he stated he would look at my draft. And he wrote that I would regret the decision to spend my life investigating nonexistent alien visitations. How wise he was.

Though I learned enough about science from my association with Phil and several others who became members of CSICOP, thereby embarking on a subsequent educational research project involving the use of scientific reasoning in a high-school English course, I consider the example Phil set for me as a professional model of explaining what is complicated to the layman as most significant. And he did it with passion.

The believers, of course, did not like my association with Phil, especially when they learned I stayed with Phil one weekend at his Washington, D.C., home in June 1976. They did not understand that he had studied their publications as carefully as anyone and could offer me a reasoned critique, regardless of the source of information. And he did not operate on a buddy system of ineptitude. He wanted the truth, no matter what it took to find it.

Could anyone ever have a better educator than Phil Klass? I doubt it. Luckily for our society and the world, his books will be useful well into the future, for they serve as an intelligent antidote to nonsense.

To me, he was like Horace Mann, who was the father of American public education, a concept begun in Massachusetts in 1837. In his speeches to graduates, Mann often reminded his audiences, "Be ashamed to die until you have won some victory for humanity."

Philip Klass achieved many victories during his lifetime, and humanity is the better for it. We may not see his like again in the paranormal field.

E. A. Kral
Wilber, Nebraska

Plane Crash 'Miracles'?

We are bombarded with television programs that trumpet paranormal claims, and are part of a society where nonscientific, biblical literalism poses a threat. It is troubling to me, therefore, to see the SKEPTICAL INQUIRER devote more than a page to publish an article, by its managing editor yet, on the use of the word *miracle* in an article on aircraft-crash survival ("Plane Crash Survival: Miracle or Skill and Science," November/December 2005). Such use (or to be fair, misuse) of the word is common, and to devote that time and space to "clarify" the issue is foolish. The force of words constantly changes over time, and while I suppose some people may believe God personally intervened in the case of that crash, the article in question won't disabuse them. Let's have more emphasis, please, on confronting the more important issues of our increasingly science-hostile world.

Carl Gurtman
York, Maine

You know, the cleverness of your statistics aside, if I survived a plane crash along with every other passenger on the plane, I would damn well too call it a miracle, and if some skeptic came along carping about that, I'd tell him to get stuffed. Or to go be in a plane crash and see how *he* felt.

I think I'm going to define a new kind of skeptic: *hyperrationalist*.

Wendy Grossman
Richmond, Surrey
England

Benjamin Radford responds:

While Carl Gurtman saw my piece as about clarifying word usage, I intended it as a comment on how logic and statistics can help us understand the true likelihood of seemingly paranormal or miraculous events. I appreciate Wendy Grossman's point, and of course we see miracles where we wish to see them. I've not survived a plane crash, but I have had my life threatened twice; in neither instance did I think anything miraculous occurred. Circumstances, human action, and (Richard Wiseman's brand of) luck put me in—and got me out of—those near-fatal situations.

Two Blemishes?

The current issue of SI is one of the best. Congratulations.

The only blemish is Massimo Pigliucci's article ("Just the Facts, Ma'am," November/December 2005), which contains two major errors:

1. "There is no hard and fast distinction between facts and theories." Facts occur whether or not we know them, whereas theories are human creations. Pigliucci has overlooked the fact that scientific theories, whether true, half true, or false, describe objective facts, not other theories.

2. Pigliucci praises Hume and Kant, neither of whom was in tune with science. Both were inimical to science, because they held that only appearances (phenomena) can be known. (Kant even held that "the world is a sum of appearances.") This is why their followers, the positivists and logical empiricists, rejected atomistics and astrophysics.

Mario Bunge
Department of Philosophy
McGill University
Montreal, Quebec
Canada

Dubious Quotes

Since when has the SKEPTICAL INQUIRER decided to start spreading mythical quotes?

I'm referring to the Miller and Balcetis article, "A Critique of Futurism," in the September/October 2005 issue. In it, they repeat the tired old claims that Tom Watson of IBM once stated, "I think there's a world market for about five computers," and that Bill Gates once assured us that "640K [memory] ought to be enough for anybody." Can anyone tell me exactly when and where those statements were allegedly made?

From Wikipedia (http://en.wikipedia.org/wiki/Thomas_J._Watson): "Although Watson is well known for his alleged 1943 statement: 'I think there is a world market for maybe five computers,' there is no evidence he ever made it. The author Kevin Maney tried to find the origin of the quote, but has been unable to locate any speeches or documents of Watson's that contain this, nor are the words present in any contemporary articles about IBM. The earliest known citation is from 1986 on Usenet in the signature of a poster from Convex Computer Corporation as 'I think there is a world market for about five computers'—Remark attributed to Thomas J. Watson (Chairman of the Board of International Business Machines), 1943."

In regard to the case of the Bill Gates "quote," see http://tafkac.org/celebrities/bill.gates/gates_memory.html, where Gates denies ever saying such a thing: "I've said some stupid things and some wrong things, but not that. No one involved in computers would ever say that a certain amount of memory is enough for all time."

I'm rather disappointed in CSICOP for letting this sort of nonsense be published in the SKEPTICAL INQUIRER.

Ed Foster
Cotuit, Massachusetts

Richard L. Miller responds:

I apologize if my choice of examples has contributed to the perpetuation of urban legends. My source for the two quotes in question was

originally an instructor's manual for the textbook, Exploring Social Psychology. *Regarding the Watson quote, if it is a myth, it is certainly widespread and can be found on numerous Web sites concerning technology (as examples, see www.tech-news.com/another/ap200303.html and www.storiadellinformatica.it/uk/ukerror.htm) as well as Web sites that provide quotations (as examples, see www.anecdotage.com/index.php?aid=11509* and *www.anvari.org/fortune/Quotations_1/363.html). In an article published in* USA Today*, I found that the Watson quotation has been denied by IBM (see www.usatoday.com/tech/columnist/kevinmaney/2005-07-05-famous-quotes_x.htm), although at the Web site for the History of Computing Project, on the page titled, The History of Computing: Pre-Industrial Era 1940–1944 (www.thocp.net/timeline/1940.htm), the editors suggest that the quote may have occurred in the context of computer sales for a given year.*

As for the "quote" from Bill Gates, his denial is on record as is his statement that "meanwhile, I keep bumping into that silly quotation attributed to me that says 640K of memory is enough. There's never a citation; the quotation just floats like a rumor, repeated again and again."

I am sorry to have been one more contributor to that floating rumor.

Astronomers Royal

A very minor point to pick on from the September/October 2005 issue. On page 46, you say that Richard Wooley was the United Kingdom's Astronomer Royal. Actually, there is a separate Astronomer Royal for Scotland, and Wooley was Astronomer Royal for only England.

Jay Pasachoff
Hopkins Observatory
Williams College
Williamstown, Massachusetts

Tom Cruise and Psychiatry

With regard to the September/October 2005 article by Amanda Chesworth, one thing is very wrong.

Yes: L. Ronald Hubbard was "psycho as hell," as his own son said. Yes: the Church of Scientology is a "cult of greed," as *Time* magazine wrote in a May 1991 cover article. (In fact, the church's notorious jihads against individual critics make me write this letter under a pseudonym!) There is no doubt in my mind that western governments need to crack down on this aggressive cult in a major way.

But psychiatry is even worse!

Lobotomies are still performed in the United States. A hundred thousand people are being electroshocked every year in the U.S. alone, and many against their will. And millions of children labeled with a nonexistent disease, "Attention Deficit Hyperactivity Disorder," are being drugged with amphetamines because of the boring way science is taught at school.

The civil-libertarian movement against psychiatry started before Hubbard founded the so-called Citizens Commission on Human Rights (CCHR), an organization that exposes the flawed practices of psychiatry. Although I like some of CCHR's activism, it is spoiled by the crazy doctrines of the cult (like the vitamin stuff that Tom Cruise recommended to Brooke Shields or the fraudulent Narconon practices that Chesworth cites in her article). On the other hand, intellectuals who debunk psychiatry are *not necessarily* Scientologists (see, for example, www.breggin.com). And the same can be said of psychiatry-survivors groups (see www.mindfreedom.org).

Those who believe that psychiatry is genuine medicine must read one of the most searing exposés that has ever been written about it, "Why Psychiatry Is a False Science." (See the English section of www.antipsiquiatria.org.)

Karellen Kubrick
Mexico City
Mexico

Prayer and Loss

Susan Bury ("Praying for Jane," November/December 2005) spoke eloquently for those of us faced with sudden loss or, in my case, the grave illness of a loved one. My husband suffered a critical illness two years ago that required over two weeks in the intensive-care unit and a long and painful recovery. During the time when his hold on life was at its most tenuous, many others with loved ones in the ICU told me they were praying for us. While we were there, several patients, young and old, died—most of them prayed for with great fervor and sincerity by their families and friends. My husband survived, their loved ones did not. Were their prayers more effective for my husband, a nonbeliever, than they were for their own loved ones? To paraphrase Ms. Bury, there is no God who would honor prayers for a nonbeliever and ignore prayers for a believer.

I wished briefly that I, too, could have prayed—it would have given me something to do during those long and desperate hours.

Linda Dacon
Port Townsend, Washington

St. Patrick's Influence?

Joe Nickell ("Legends of Castles and Keeps," November/December 2005) said on page 25 that certain animals are absent from Ireland "due to climactic conditions." I'm almost sure he meant to write "*climatic* conditions," but perhaps St. Patrick's religious influence there caused repression of the mating instinct of the missing animals.

Mark Brown
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The letters column is a forum for views on matters raised in previous issues. **Letters should be no more than 225 words.** Due to the volume of letters not all can be published. Address letters to Letters to the Editor, SKEPTICAL INQUIRER. Send by e-mail text (not as an attachment) to letters@csicop.org (include your name and address). Or mail to 944 Deer Drive NE, Albuquerque, NM 87122, or fax to 505-828-2080.

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